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Workers on Time When Competitive Spirit Is Stimulated

Problem of Absenteeism Minimized By Personal and Departmental Records

By J. J. Berliner

Senior Member, National Accounting Systems

ATTENDANCE RECORDS
For Week of May 6-11, 1929

	Per cent
Main office	85
Sales department	70
Shipping department	90
Department A	91
Department B	90
Department C	95
Department D	98
Assembly room	89
Finishing room	90
Average, all offices	81.6
Average, all shops	92.1
Average for factory	86.8
Factory average, last week	98.5

(Signed)
General Manager

FEW problems in the field of industrial relations have received more earnest thought and study on the part of employers than absenteeism and tardiness of employes. As industry is geared today and operations of various departments interlock, absence of some workmen frequently plays havoc with production schedules, not only by retarding the work of one group, but interfering with the normal course of others. Many suggestions have been made and tried to overcome this evil, some employers going to extremes in penalizing or rewarding employes to obtain the desired result. A certain amount of absenteeism is unavoidable, but most of it can be overcome. The following described system has the merit of having been tried and proven effective in a number of instances.

A manufacturing company that adopted it a little more than a year ago reports a marked improvement in attendance. Production has been greatly increased, the labor turnover is considerably lower than formerly, and the workmen are more satisfied. The system involves no expenditures beyond those for a small office force to operate it, and depends on a factor often overlooked in industry—human emotions. No bonuses, no rewards, no fines, no "shouting and fireworks" are a part of the plan. It is nothing more complicated than the playing of one man's pride against another's or, in a more general sense, playing the collective pride of one department against the collective pride of a rival department, and supplementing this human competition with the assurance of a square deal.

The system is not offered as a panacea for all modern industrial ills, but it is a matter of record that it has proved a successful cure for a number of them, and has been a potent factor in the reduction of yearly turnover, in increasing punctuality and regularity in workers, in cutting down accidents, and in the settlement of petty wage disputes, which if neglected often prove as expensive

PUNCTUALITY MEMO

Week ending May 11

TO FOREMAN DEPT A

Shops average this week	92.1
Offices average this week	81.6
Your average this week	91
Your average last week	90

Signed.....

Each week every foreman gets a memorandum showing him where his shop stands in comparison with others

and disastrous as larger and more general complaints.

By compiling complete records of the regularity of attendance, by individuals and by shops, and by putting one shop into competition with another for the best record, the company has succeeded in a period of ten months in cutting absenteeism from 24 per cent of the payroll to less than 8 per cent.

Daily reports of absentees, taken from the timeclock records, are sent by messenger to every foreman and department head. The foreman and various managers determine the cause of the absence, and then report to the personnel department the results of their investigations. The personnel department, headed by the employment manager, sends out investigators to check and supplement the foremen's reports. This is done primarily to insure absolute accuracy of all records.

When a worker is found to be absent without cause his negligence is called to his attention from the practical viewpoint of business loss. Invariably when an employe finds his absence is made a matter of record he takes more interest in getting to work regularly and on time.

Charts which show graphically the record of each shop and department are posted monthly in conspicuous places. Seldom does a foreman find his shop low on the list without making an effort to bring it to a more creditable position. In a sense, the chart is a gage of foremen's efficiency; at least, they consider it as such.

At the end of each week the personnel department posts throughout the shops another chart showing the comparative rate of punctuality in each shop department and office. Again the element of competition plays a prominent part. The foremen whose shops are low immediately get busy to see that they are not low the next week; those whose shops are high put forth new efforts to make them higher.

On Feb. 15, 1928, the worst shop in this plant had a punctuality record of 15 per cent. This means the average person in the shop reported punctually only 15 times out of 100. The second week of the system, without any urging other than the posted records, the low record was 22 per cent; the third week 39 per cent; the fourth week 44 per cent, and during the last week of October the low record was 58 per cent.

The general punctuality record for all offices increased from 68.08 per cent on March 1 to 93.90 per cent on Nov. 1, and for the shops, from 93.09 per cent during the same period. The actual value of this increased punctuality is apparent to any employer.

The reduction of absenteeism increased plant efficiency, and aided in lowering costs. The record cards used in this instance are reproduced with this article.

In estimating the value of reduction in absenteeism the following features

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REPORT OF IRREGULAR ATTENDANCE

DEPT. A SHOP WEEK MAY 6-11, 1929

A	Absent with permission of foreman	F	Injury received at plant
B	Absent no reason known	G	Company business
C	Reported sick or disabled	H	Death in family
D	Reported sickness in family	L	Laid off; slack work
E	Verified report of disability	R	Released
		V	Vacation

Please supply information and return to Employment Department

Monday			Tuesday			Wednesday			Thursday			Friday			Saturday		
No.	In Late	Out Why	No.	In Late	Out Why	No.	In Late	Out Why	No.	In Late	Out Why	No.	In Late	Out Why	No.	In Late	Out Why

Results of the absentee investigations are tabulated daily. When the employe knows this is an important and permanent record he takes a new interest in getting to work on time

Utilizing Scrap in Steel, Gray Iron and Malleable Mixtures

Careful Sorting, Adherence to Specification and Intelligent Melting Practice Are Fundamental to Good Results—Desulphurization Is Important

By E. K. Smith and F. B. Riggan

Stockham Pipe & Fittings Co., Birmingham, Ala.

USE of scrap in mixtures is a problem which confronts every iron and steel foundry. Each furnace consumes a proportion of scrap ranging from a moderate amount of remelted gates, etc., up to all-scrap mixtures. We must use scrap whether we want to or not. The salvage of material is inevitable; it is an economic necessity.

The total ferrous scrap produced in this country is stated to be about 20,000,000 tons yearly. As every ton of scrap saves two tons of ore, the use of scrap in this country alone saves yearly 40,000,000 tons of our diminishing ore reserves.

The volume of scrap is increasing continually. Engines, pipe, automobiles and other equipment are being replaced by more modern machines. In the automotive field alone, about a million cars are scrapped yearly, with an average of about a ton of metal in each. This great supply of raw materials would be available for foundry use, if it could be had in suitable form.

In order to use scrap safely in the foundry, it is absolutely necessary to have it properly sorted. The railroads have done pioneer work on the salvage of scrap. Cars of sorted cast scrap, and of short rails, have established a standard for the whole market. The several scrap associations are carrying on this work. The scrap now available is far better than that of ten years ago, and there is yet room for improvement.

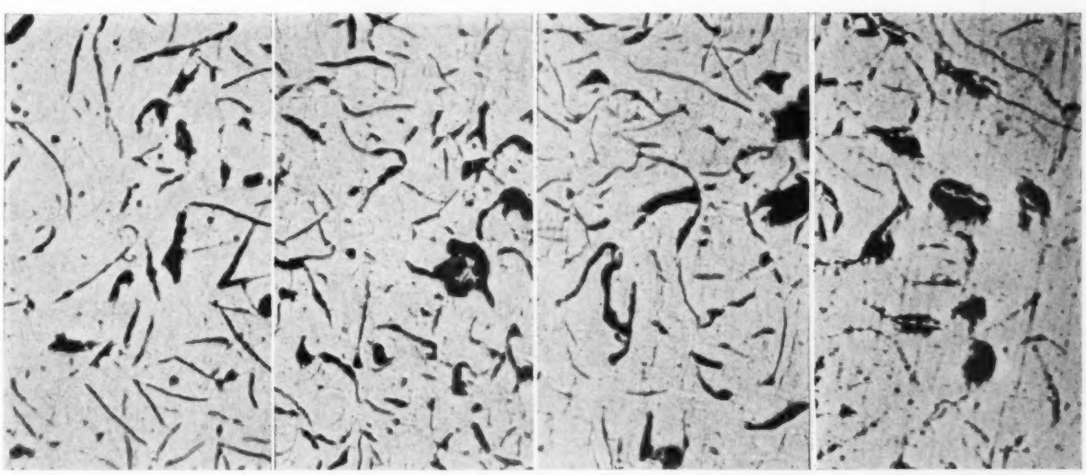
Mixed scrap is a constant source of trouble. There is no economy in using poorly sorted scrap, no matter what the price, for difficulties will follow. More and more iron products are being sold under specifications.

Gray iron foundrymen have a wide field of scrap from which to choose.

Role of Scrap Gains in Importance

IRON and steel scrap is playing a more important part in American industry than ever before. Its use concerns not only the metallurgical processes of iron and steel production but also the economic basis of the entire metal-working branch of industry. More constructive influences are improving its quality, selection and distribution.

For these reasons the accompanying article from a paper presented at the convention of the American Foundrymen's association, Chicago, April 8-10, 1929, is of more than usual interest. The authors are metallurgist and associate metallurgists, respectively, Stockholm Pipe & Fittings Co.



25 PER CENT SCRAP 50 PER CENT SCRAP 75 PER CENT SCRAP 100 PER CENT SCRAP

Fig. 1—Micrographs of irons with varying per cents of scrap to show inclusions or lack of inclusions—100 X, unetched

Table I

Sizes and Weights of Scrap for Cupolas

Steel Scrap

Diam. cupola inside lining, inches	—Thickness, inches— Maximum	Minimum	Maximum length, Inches	Maximum weight, Pounds
48	1	¼	24	50
60	2	¼	36	75
72	3	¼	48	100
90	4	¼	60	150

Cast Scrap

Diam. cupola inside lining, inches	—Thickness, inches— Maximum	Minimum	Maximum length, Inches	Maximum weight, Pounds
48	4	¼	24	100
60	6	¼	36	150
72	6	¼	48	150
90	8	¼	60	200

Table II

Analyses of Common Grades of Cast Scrap

	Silicon	Sulphur	Manganese	Phos.	Carbon
Machinery	2.00	0.090	0.80	0.60	3.50
Railroad	2.00	0.090	0.80	0.50	3.25
Agricultural	2.25	0.090	0.70	0.70	3.50
Stove Plate	2.50	0.070	0.55	0.95	3.75
Car Wheel	0.65	0.080	0.50	0.35	3.50

Some common grades are as follows:

Steel. Usual analysis: Silicon 0.05 per cent, sulphur 0.04 per cent, phosphorus 0.04 per cent, carbon 0.20 per cent. Melting of steel resolves itself into having proper cupola practice, and good steel. The bed must not be very low and sufficient coke must be used for superheat (7 to 1 is a common ratio). Much trouble comes from use of steel which is too thin or too thick. Table I gives a possible guide for use of steel in various sized cupolas.

Malleable Scrap. Usual analysis: Silicon 0.75 per cent, manganese 0.30 per cent, sulphur 0.090 per cent, phosphorus 0.15 per cent, carbon 2.00 per cent. This material is not popular in the gray iron foundry, mainly because of high sulphur, and often agricultural grades are badly rusted.

Cast Scrap. This is used mainly to cheapen mixture. Table I shows approximate limits of scrap for various sized cupolas. Analyses of common grades of cast scrap are given in Table II. Carload lots usually analyze fairly near these figures.

Another item to be disposed of is gangway shot and screenings. When these are less than ¼-inch in size, it often is cheaper to sell to a dealer for blast furnace use, than to risk getting dirty, or oxidized metal.

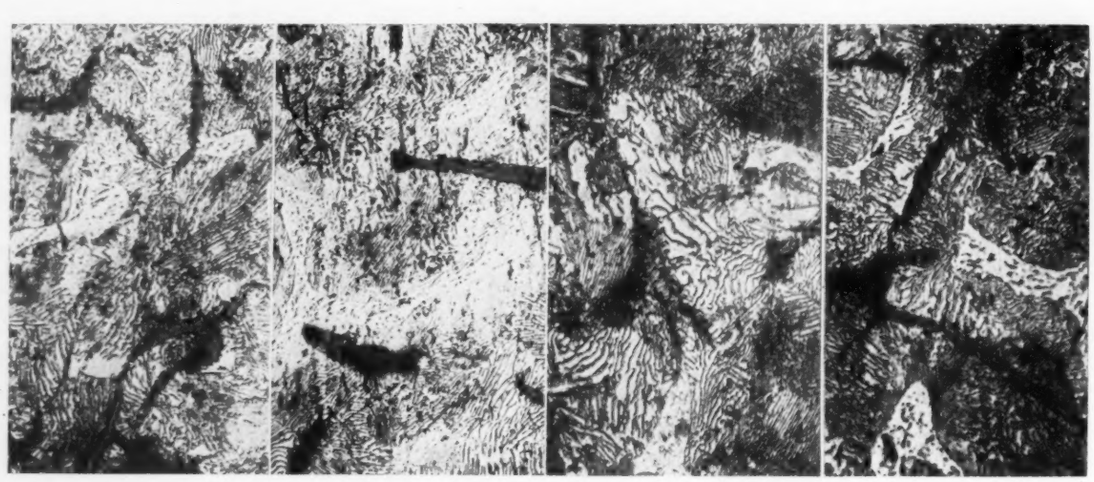
All the usual precautions of cupola practice apply doubly when using much scrap in mixture. In particular:

1. Use no poor scrap of any kind, especially oversize or thin.
2. Use no very dirty or rusty scrap.
3. Break up all flat plates which might obstruct blast.
4. Every charge level—and covered with coke.
5. Keep slag liquid—use flux if necessary.
6. Charge steel first, then pig, then scrap.
7. If a large lump of scrap must be melted, place enough coke under it, so that it will not sink down into bed coke.
8. If melting whole motor blocks, be sure to allow for the steel they contain. A typical four-cylinder motor contains: 149 pounds of cast iron, 57 pounds of steel, 1.6 pounds of brass and 1.2 pounds of babbitt.

Run Charges for Comparison

In order to get a comparison between mixtures with varying amounts of scrap a series of charges was run with the scrap varying from 25 to 100 per cent. The remainder of the charge was 2.25 per cent silicon pig iron. The scrap in each charge consisted of equal parts of automobile, pipe and radiator. The results are given in Table III.

The unetched micrographs, Fig. 1, show no difference in structure through mixtures with 75 per cent scrap, but in all-scrap mixtures there



25 PER CENT SCRAP 50 PER CENT SCRAP 75 PER CENT SCRAP 100 PER CENT SCRAP

Fig. 2—Micrographs of irons with varying per cents of scrap—same irons as in Fig. 1, 500 X—Etched with solution of nitric acid and alcohol

appear to be some inclusions, possible oxides, and the grain is finer. Etched samples of Fig. 2 show little change until 100 per cent scrap is reached. Increasing amounts of scrap in the mixture had little effect on physical properties, and but little on analysis, except to raise sulphur. Hardness increased slightly with increased scrap.

This series of experiments tends to show that the proportion of scrap in the mixture does not have much effect on physical properties on the first melt, regardless of what raw materials went into the mixture. It must be kept in mind that such high percentages of scrap would be impossible for most actual foundry mixtures, as the return scrap would shortly raise sulphur above the danger point, unless this was removed in some way.

Effects of Burned Material

In order to find the exaggerated effect of borings, tin, zinc, and burned material, we ran the experimental heats shown in Table IV.

Micrographs, Fig. 3, of castings melted from burned material show a large number of small inclusions, although physical properties were not bad. These small inclusions invariably are a sign of poor iron, together with the lowered carbon and manganese indicating oxidized metal. No burned material should be used in any foundry mixture, it being only suitable for blast furnace use.

Micrographs of bars melted from all borings show a large number of small inclusions, similar to the burned material, but worse. This simply confirms practical experience with the use of borings, which are produced in large quantities in many shops. Some cases are reported where borings are successfully charged in wood or metal containers, but the general experience shows that melting of borings in the cupola invariably results in trouble, mostly from shrinks, "dead iron" and other manifestations due to oxidized metal. In a number of cases borings have been compressed by very high pressures into briquettes, which are almost as solid as pig iron, and which are said not to cause oxidation. The place for borings is in the blast furnace or the electric furnace.

The object of mixtures containing tin and zinc, was to determine whether a small amount of tinned or galvanized scrap, such as is frequently received, would have any possible detrimental effect on gray iron under usual conditions. In order to make the conditions extreme, the mixtures were 100 per cent scrap gray iron, and both tin and zinc were added in the ladle, as well as in the charge. In spite of these conditions,

Table III

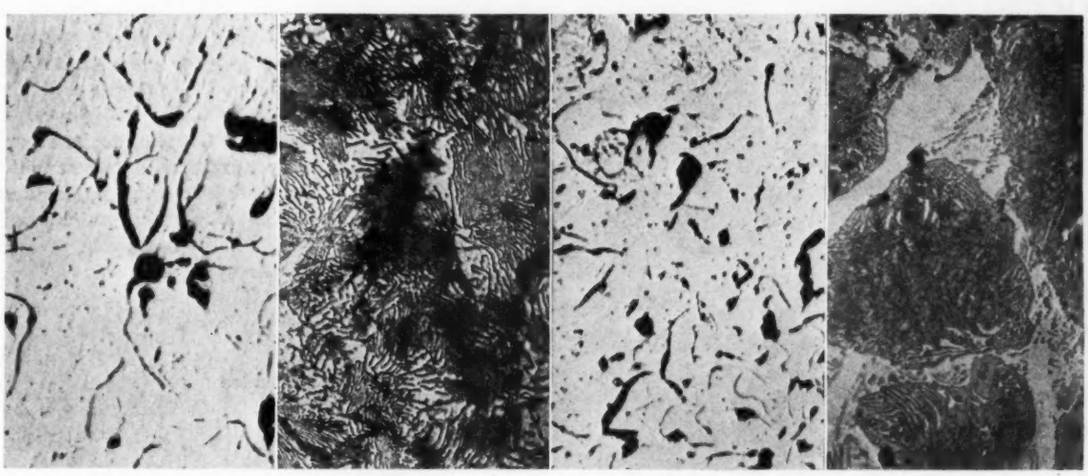
Variation of Analysis with Varying Per Cents of Scrap

	25% Scrap	50% Scrap	75% Scrap	100% Scrap
Silicon	1.50	1.44	1.80	1.90
Sulphur	0.090	0.128	0.130	0.140
Manganese	0.400	0.540	0.500	0.440
Phosphorus	0.73	0.76	0.72	0.68
Combined Carbon	0.89	1.06	0.86	1.15
Graphite	2.35	2.45	2.65	2.40
Total Carbon	3.24	3.51	3.51	3.55
Brinell	207	212	207	223
Transverse Strength	3,400	3,700	3,900	3,750
Tensile	29,900	33,100	28,400	28,000

Table IV

Effects of Borings, Tin, Zinc and Burned Material

Contents of charges	No. 1 All burned material	No. 2 All borings	No. 3 All scrap 5% tin	No. 4 All scrap, 5% zinc
Silicon	1.69	1.80	1.45	1.90
Sulphur	0.115	0.147	0.092	0.098
Manganese	0.27	0.27	0.32	0.33
Phosphorus	0.714	0.708	0.462	0.520
Total Carbon	3.03	3.00	3.40	3.54
Graphite	1.95	1.80	2.40	2.85
Combined Carbon	1.08	1.20	1.00	0.69
Brinell Hardness	228	241	228	179
Tens. Strength, lb. per sq. in.	22,000	22,200	25,700	27,800
Transverse Strength, pounds	4,200	2,200	2,350	2,500



100 X UNETCHED 500 X ETCHED BURNED SCRAP MIXTURE

100 X UNETCHED 500 X ETCHED BORINGS MIXTURE

Fig. 3—Unetched and etched irons from burned scrap

Table V

Effect of Soda Ash on All-Scrap Mixtures

Desulphurized		Not Desulphurized	
Silicon, per cent	1.45	Silicon, per cent	1.90
Sulphur, per cent	0.070	Sulphur	0.140
Manganese, per cent	0.30	Manganese, per cent	0.44
Phosphorus, per cent	0.50	Phosphorus, per cent	0.68
Carbon, per cent	3.20	Carbon, per cent	3.55
Brinell hardness number	196	Brinell hardness number	223
Pounds, transverse strength	3,900	Pounds transverse strength	3,750
Tensile strength, lb. per sq. in.	34,000	Tensile strength, lb. per sq. in.	28,000

little effect was found on analysis, or on physical properties. Micrographs (not reproduced) showed typical fractures, with no sign of inclusions. In ordinary practice, the zinc probably volatilizes before it reaches the melting zone. It seems probable that tinned, or galvanized materials, in any ordinary amounts, would have no effect on quality of cast iron.

In considering any scrap mixtures provision must be made for mixing the iron as it melts. Where the cupola is tapped out periodically, the crucible should hold at least a charge. If a mixing ladle is used with continuous pour, the ladle should hold at least a charge. Larger ladles mix better, but too much heat is lost.

In gray iron mixtures, a wide range of scrap is available, depending on the characteristics of the castings required. In a foundry producing 30 per cent scrap to be remelted, the old method was to add 70 per cent of suitable pig iron, the resulting casting having open grain, and moderate strength. Under present conditions, a stronger, closer grained iron could be obtained, at slightly lower cost by employing the following charge: Remelt, 30; pig iron, 50; No. 1 cast scrap, 15 and steel scrap, 5 per cent. This gives fluid iron with physical properties of 28,000 pounds per square inch tensile strength and 3400 pounds per square inch transverse strength.

Scrap available for malleable practice, either air furnace or cupola, is limited practically to two items—steel and malleable scrap. Steel should be not thinner than ¼-inch and should be free from castings and forgings, owing to possibility of contamination from alloys. Most of the alloys have a marked effect on a malleable anneal, either accelerating or retarding graphitization. Probably the most feared is chromium, a small percentage of which will completely prevent the malleable anneal. The importance of avoiding alloys cannot be overestimated. For this reason, such scrap as steel rails, "3 ft. and under," and short "I" beams, crop ends, etc., are preferred.

Alloys in Rails Endanger Melt

Even when using steel rails there is danger of alloys; chromium is sometimes found. Switch points and crossovers of manganese steel may get in rail scrap. These may contain 15 per cent manganese and would cause high manganese in castings.

Light or rusty steel is unsuitable for malleable use owing to oxidation.

In the cupola, large steel plates should not be used as they obstruct the blast, and cause "hang-ups." Punchings are bad, as they drift down between charges and cause erratic melt.

In using any scrap care must be taken not to include cast iron as the high phosphorus would cause trouble in galvanizing or anneal.

Malleable scrap may be safely melted in air furnace or cupola but if any large proportion is used, desulphurization with soda ash probably will be necessary. Agricultural scrap often is too rusty for safe use and in spite of its lower price is no economy, unless it can be inspected prior to purchase.

Railroad malleable usually is of uniform size, and not too rusty and commands a good price.

One precaution to be especially observed in using malleable scrap, is to look for castings which are made of gray iron and steel as well as malleable. Grease boxes are made in both malleable and cast iron. When malleable scrap comes direct from the railroad yard, the sorting is accurate, but often cars are bought and scrapped by local yards, in which case a number of gray iron boxes may be mixed with the malleable, which may cause serious trouble. As a rule the gray iron castings can be separated by inspection as they have a heavier section than the malleable.

Sprues must be remelted and are much better if rolled free from sand. They should be melted each day.

Buying a carload of scrap used to be a gamble, as almost any analysis could be found in the castings. Today most of the malleable is made according to uniform practice and practically all malleable scrap has a similar analysis.

In the air furnace, malleable scrap can be used in moderate amounts, but the percentage of sulphur in the castings must be watched closely. Steel can be used only in small amounts as carbon will be too low, unless the metal is to be recarburized. Rusty scrap will reduce silicon and manganese. A typical malleable air furnace mixture contains sprues, 45; pig iron, 40; malleable scrap, 10 and steel scrap 5 per cent.

Scrap for cupola malleable must have the same characteristics as for the air furnace. Cupola mixtures are flexible as the steel takes up about 2.7 per cent carbon from the coke.

Steel scrap is the basis for all electric steel mixtures. The acid process requires high grade scrap. It must be of small size to go into the furnace door and must not be too heavy

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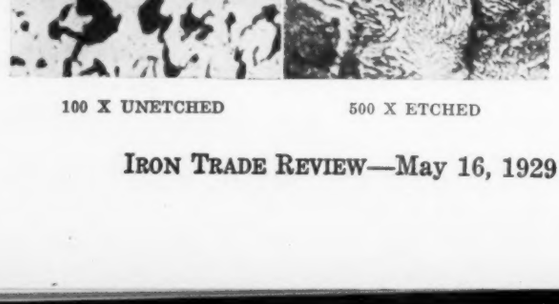


100 X UNETCHED 500 X ETCHED

Fig. 4—Desulphurized all-scrap mixtures

Constructs Models of Metal Cabinets by Oxyacetylene Welding

Gas Torch Proves Rapid and Economical Tool in Experimental Development of Articles Preparatory to Mass Production

By J. L. Anderson

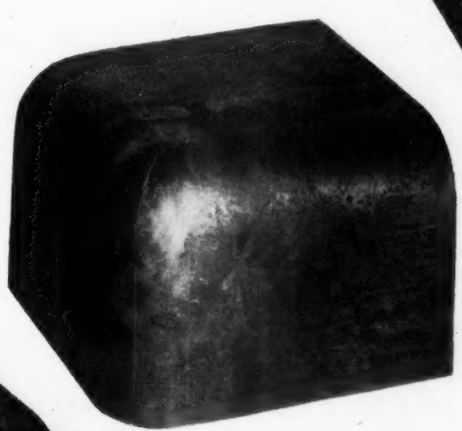
Research Engineering Department, Air Reduction Sales Co., New York

A BEAUTIFULLY shaped metal cabinet decorated in one of the modern art finishes, bespeaks genius, but seldom does the world hear the story of its development for mass production, or the steps toward its present splendor traced. Development of such products often dates back to most insignificant beginnings and it is to an origin of this kind that attention is directed.

In the production of elaborate or even simple sheet metal products that are expected to have a great sale, but which must be made of pleasing appearance and at the same time meet perfectly the mechanical or other requirements for which they are designed, it is customary to build handmade models of various dimensions and details of ornamentation until the most generally acceptable design or construction is developed. This course is pursued because the finished product in this state can be viewed from many angles, decorated to harmonize with design, compared with other models and tested for performance if the case is a component part of a device. The model can be constructed with speed and economy without the use of expensive dies and tools which could not be modified easily and which require long periods for manufacture.

It is in these instances that the oxyacetylene welding torch proves its worth even though the final product when in mass production does not in any way lend itself to gas welding. An interesting example of the value of the oxyacetylene process was afforded recently in the development of metal cabinets for one of the popular radio sets now manufactured at the rate of several thousand per day. Needless to say the beautifully modeled cabinet now so familiar to everyone is not the first design that was developed; in fact, it has little resemblance, but withal, the first cabinet was a delight to the eye with its nicely rounded corners and raised panels. It was in the development of this first model that the proportions of the curves with reference to the other lines was studied and modifications planned. Various modified models were constructed and models of component parts made for comparison until the design in which every curve and line seemed to fit into the picture without discord, was evolved. At this point complete duplicates were made so that the various art finishes could be applied and comparisons made until the final stamp of approval was given with the hope that the public would respond—with an overwhelming demand for the product.

Fig. 3 (Right)—After welding and grinding, the cabinet corner presents a pleasing appearance with no evidence of a joint. Furthermore, the curvature is correct by mathematical calculation



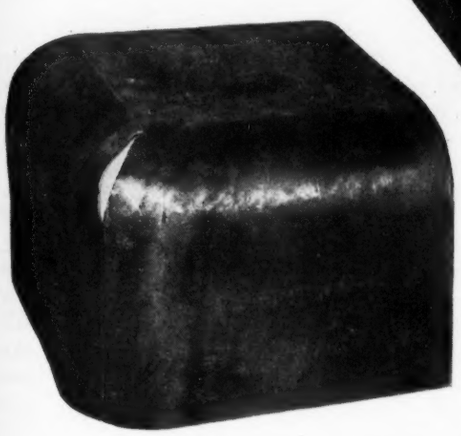


Fig. 1 (Left)—The open edges of the cabinet will come together when dressed to shape with a mallet. Fig. 2 (Above)—After dressing and heating, only a simple seam remains to be welded

The production of a finely shaped

cabinet by hand from flat sheets of annealed cold rolled steel at first glance appears difficult, but in reality can be quickly and easily carried out if care is exercised in the laying out and the principles of sheet metal fabrication are clearly understood. Producing simple curves and offsets offers no particularly difficult problem, because these shapes are formed easily in the hand-operated brakes which are a part of the tool equipment of most sheet metal working departments.

The production of rounded corners where curves meet from three directions is another matter, when these accurately finished surfaces must be produced by hand with press and die accuracy. It is here that the acetylene torch comes to the aid of the metalworker and the following procedure is carried out. Assuming that the design shown in Fig. 4 at *A* is the profile of the meeting curves and the angle of approach of the curved edges is ninety degrees in each case, the first step in the development of the pattern is shown at *A*. A quadrant having the same radius as the rounded edges is drawn. The arc of this quadrant is in this case divided into 13 equal parts. Each dividing point is projected horizontally to *B* where it intersects the vertical line *a-b*. From *a* as a center and with radii equal to *a-1*, *a-2*, *a-3*, etc., draw 13 quadrants and bisect these quadrants with the line *a-d* at 45 degrees to *a-b* representing the corner seam. Along the vertical and horizontal lines *e-f* and *f-b* lay off 13 parts equal in length to the subdivisions of the quadrant *A* and erect ordinates at each dividing point equal to the corresponding lengths *1-1'*, *2-2'*, *3-3'*, etc., taken from *B*. The curves described by the ends of these ordinates form the profile of the pattern to which the sheet is to be sheared for the formation of each corner.

Each ordinate can be computed by the formula indicated in Fig. 4, or if for the sake of rapidity approximate dimensions only are satisfactory, the lengths can be determined by stepping off the ordinates with dividers. Any inaccuracy in this case will be a minus quantity and the metal added in the welding operation will supply the deficiency.

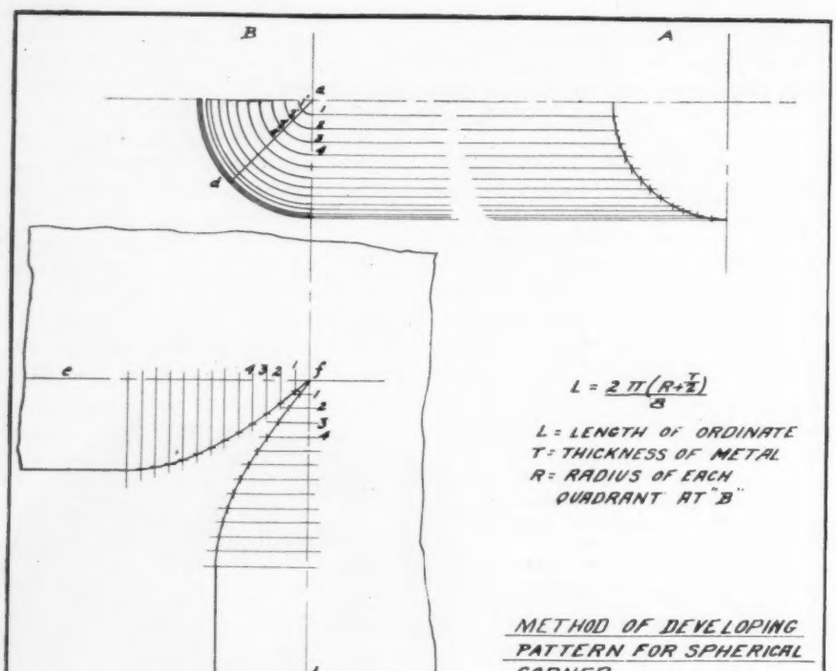


Fig. 4—Steps in developing a pattern for a 90-degree rounded corner

When formed, the corners will produce the appearance shown in Fig. 1 and a gap in the edges will be noticed. It will also be seen that there is some excess metal not in the proper position to give the required shape. No attention is paid to this gap until the meeting edges of the perpendicular curved corner are welded and dressed down to the desired contour. Now with a stake finished to ball shape on the end and of the exact inside dimensions in accordance with the radius indicated in Fig. 4, the corner is placed on the end of the stake and with a mallet is dressed to the exact shape. If the radius of the corner is considerable the metal can be dressed to the proper curvature more readily by heating with the torch, but for the small radii the heating can be omitted. It will be found that the edges which were open are now closed and only a simple seam weld remains to complete the corner which, when dressed to correspond with the balance of the job, will show no evidence that it was not made in a press.

The method just described for round corner model production is the most simple, but many sheet metal workers not familiar with the oxyacetylene process resort to the fitting in of one-fourth sections of disks spun to the proper curvature usually soldering or welding the meeting edges.

Embellishments Next Applied

The forming of the corners produces the foundation upon which embellishments in the form of curved or other shaped beading may be applied; or, if it is desired, the embellishments can be formed in the metal itself by laying out and bending in brakes. The latter method gives the exact dimensions to which the blanks must be developed for future production by press work. Raised or depressed panels of any shape can be worked into the design of the sides or top either by brake forming in the case of rectangular forms or with the assistance of a raising hammer if circular or curved in form.

The production of raised panels usually will be made more simple if the welding torch is employed where excessive stretching of the metal would otherwise be necessary.

The welding process applied in this type of experimental production affords the opportunity to duplicate with extreme accuracy the best press work and permits models to be finished by baking or other heat treatment exactly as the final product is finished and at one stroke the development of the model is complete.

Receipts at Seattle

Seattle received in 1928 by water 180,968 tons of iron and steel from domestic sources and 20,143 tons from abroad. Of domestic receipts, 131,110 tons came from North Atlantic ports, 23,236 from Gulf ports and 26,622 tons from California. Germany led foreign shipments with 9645 tons, of which wire products and steel angles combined totaled more than 5000 tons. Pig iron imports included 1117 tons from India and 622 tons from Great Britain. Gulf ports sent in 3765 tons of pig iron.

Design and Style Influence Appeal of Products in Markets

Executives Attending Annual Spring Convention of American Management Association in New York Discuss Styles, Research, Mergers and Pensions

MORE and more attention is being directed to design of products, according to speakers at the annual spring convention of the American Management association held in New York, May 6-10. One whole day of the five-day convention was given over to design and style. This was an innovation in convention procedure and was met with enthusiastic response on the part of members.

The relation of style to budgeting was covered in a paper by Willard E. Freeland, president, Freeland & Warren Inc., Boston. Criticism of budgeting systems has often been voiced on the ground that unpredictable changes in style are apt to offset otherwise valuable budgets. Mr. Freeland thinks the opposite is the case, and that changes in style make budgeting all the more necessary.

Research Aids Production

"Research in markets, styles, type, variety and character of products combined with research in standardization, has probably done more to release working capital locked up in a slow moving inventory, to permit capacity production operations over a longer period of the year with lower capital investment in plant equipment and inventories than any other forms of research," said Harold V. Coes, consulting management engineer, Ford, Bacon & Davis Inc., New York. Continuing Mr. Coes said:

"Bankers are beginning to learn that research properly organized and applied to the activities of a business or an industry is of prime importance to the safeguarding of the investments in the industry or the individual unit of an industry and to its successful continued operations over a period of years. In the no distant future they are going to require in addition to balance sheets, income and operating statements, a statement as to what is being done by the company in research. Intelligent use of research in all phases of industrial, business and financial problems is one very good indication of capable management."

The convention was well attended and according to executives of the association the technical papers in value and significance have seldom been exceeded. An unusually enthusiastic session considered the position of the controller in industry.

Combinations and mergers in industry are extending rapidly throughout the world, according to Dwight Farnham, manager, industrial department, Peat, Marwick, Mitchell & Co., New York, who presented on Tuesday an exhaustive study of types of combinations in America and Europe. The movement towards combinations in industry was vastly accelerated by the World war which broke down the barriers of tradition, individualism and secrecy and substituted co-operation, according to Mr. Farnham who added that the combination and rationalization of industry, nationally and internationally, coupled with the ownership of industry by the people at large through the wider public distribution of industrial securities is leading rapidly toward changes in our civilization of the utmost importance.

Speaking on this same subject, Dr. Willard L. Thorp, national bureau of economic research, New York, said that the demand for products of national advertisers has led many companies to combine that they may display their wares. It is the middle-sized company that is suffering today, he said. The small manufacturer still maintains its position.

Solving Pension Problems

One session was given over to the discussion of pensions. George W. Vary, Bethlehem Steel Co., Bethlehem, Pa., said that a difficult situation arises when an employe who cannot qualify for a pension must be dismissed by a company for one of the following causes: Consolidation, changes in process, change in location of the industry, change in product or physical disability. Steel companies have usually solved this problem by proceeding in one of the following ways, he said:

1. Transfer: Long service employes are given the opportunity to transfer to other departments or plants of the company.

2. Pension: Employes are sometimes placed on the pension roll even if they have less than the required age or service. This may be on a reduced or pro rata basis.

3. Lay-off: After transfer and pension possibilities have been exhausted the final resort seems limited to some sort of dismissal wage payment. This may be either full or part pay for a stipulated period of time or a lump sum cash payment based on earnings and length of service.

Mr. Vary described a method put into effect by the Bethlehem Steel Co. recently when they were forced to close down a small specialty plant. Employes who were able to qualify for pension under the corporation's pension plan were pensioned. Non-pensionable employes 45 years of age or over who had 10 or more years of continuous service were granted one weeks pay for each year of service and were dismissed.

New Officers

AMERICAN MANAGEMENT ASSOCIATION

Chairman

SAM A. LEWISOHN*
Vice president and treasurer, Miami Copper Co., New York

President

C. S. CHING*
Director of industrial and public relations, United States Rubber Co., New York

Vice President in Charge of Research

HARRY B. GILMORE*
Secretary, Western Electric Co. Inc., Chicago

Vice Presidents

THOMAS R. JONES
Cincinnati Milling Machine Co., Cincinnati

OSCAR GROTHE
Vice president, White Sewing Machine Co., Cleveland

L. F. MUSIL
Director of finance, Henry L. Doherty & Co., New York

*Re-elected

Will Promote Co-operation Between Manufacturers and Distributors

Three Supply and Machinery Associations Conduct Annual Triple Convention in Atlantic City—New Officers Are Elected

MARKED progress toward more effective co-operation in solving problems incident to the distribution of mill supplies, power transmission and allied products, was made at the annual triple convention of the National Supply and Machinery Distributors' association, the Southern Supply and Machinery Dealers' association and the American Supply and Machinery Manufacturers' association, at Atlantic City, May 7-9.

Much of this progress is taking the form of constituting the membership of the American Supply and Machinery Manufacturers' association into groups which will deal with problems incident to each individual product or group of products. These groups will act under the auspices of the association to settle quickly and effectively distribution problems as they arise. For instance, when distributors raise a question with reference to a certain product, the members of the association comprising group interested in that product will immediately hold a meeting with the distributors concerned. A preliminary canvass conducted by the new secretary of the American association, R. Kennedy Hanson, shows that more members fall into the power transmission group than in any other, and the association plans to have close liaison with the new Power Transmission association for solving problems relating to distribution in that field.

The convention closed, however, with one desirable step still unaccomplished. That is the unification of the country's distributors. At the manufacturers' sessions, more than one member declared that a single, strong, distributors' association in this country would help greatly in hastening the solution of many problems of common interest to manufacturers and distributors. Last year a move to amalgamate the three organizations met with failure. The National association and the Southern association met with the American association in the opening session of the triple convention, and later the Southern group attended one of the sessions of the American association, but otherwise the National and Southern groups held separate sessions. Discussions brought forth much interesting information.

Discounts of Present Day Prove Inadequate

ADDRESSES by L. G. Puchta, Queen City Supply Co., Cincinnati, and T. C. Keeling, Nashville Machine & Supply Co., Nashville, Tenn., brought out much constructive discussion in the sessions of the Manufacturers' association. Mr. Puchta held that the distributor can make progress only with the co-operation of the manufacturer. He was inclined to hold the manufacturer responsible for failure of the distributor to sell as much of his product as the manufacturer expected. Too often, said Mr. Puchta, the manufacturer forgets all about the dealer after shipping him his first consignment. The manufacturer, he said, should send men around who will explain his line to the distributors.

Mr. Keeling alluded to a compilation which showed that mill supply distributors averaged only about 2 per cent profit on their sales in 1928, and he thought that if the distributors had included all the cost factors the profit would have been even less. The problem of obtaining a fair compensation for their efforts is a matter that has gone beyond the control of the distributors, Mr. Keeling said, and there must be a remedy. Many distributor's discounts today are exactly the same as 30 years ago, despite the fact that the cost of distributing has increased tremendously. Discounts of 12½, 15 and 20 per cent from the list price, which formerly allowed a good profit to the distributor, today are utterly inadequate. Mr. Keeling urged that this subject of discounts be given early attention by the manufacturers so that the distributors be given the margin of profit which they need on the basis of present distributing costs.

Discussion of Mr. Puchta's address revealed that manufacturers are doing much work along the lines he recommended, but that the results do not in all cases prove satisfactory. B. F. Ruether, Mechanical Rubber Co., Cleveland, told of painstaking efforts to train distributors' salesmen, but not with the best results in all cases. Other speakers told of difficulties in connection with such work. One speaker told of a case where a rubber belting man was routed to work with a distributor's salesman one week and a leather belting man worked with the same salesman the next week. The result was considerable confusion among the belt users, and a feeling among them that the distributor had no reliable opinion of his own on the subject of rubber versus leather belts.

David C. Jones, first vice president, Lunkenheimer Co., Cincinnati, aided this discussion by describing a plan followed with great success by his company in training the salesman of its distributors. Three or four times a year it holds meetings, to which the distributors are invited. These meetings last three days. These meetings have been followed by ex-

panded sales indicative of success.

The consensus of opinion was that the training of distributors' salesmen is one of the important problems which confronts the manufacturers association. It was thought that there might be developed a sort of standardization of such training methods; at least, that the successful methods be placed before the membership, and that the possibilities for engaging in expensive, ineffective or harmful methods be eliminated as much as possible. R. W. Proctor, Black & Decker Mfg. Co., Towson, Md., who took considerable part in this discussion, was appointed chairman of a committee, whose other members will be appointed later, to compile information on effective ways for training distributors' salesmen.

While the remarks of Mr. Keeling aroused great interest, there was no attempt to discuss the subject of discounts from the list price allowed to jobbers. Mr. Proctor replied to Mr. Keeling's plea for a remedy by stating that the question of distributors' discounts was one that affected each product differently. When the American association organizes groups in connection with each product, Mr. Proctor said, these groups would be in a position to take needed action with respect to the size of discounts covering distribution.

Distributors Operating on Efficient Basis

DISTRIBUTORS never have had their business on a more efficient basis than at the present time, according to E. P. Welles, Charles H. Besly & Co., Chicago, president of the National association. Slow-moving goods have been eliminated by most houses. It costs a distributor 20 cents to sell a dollar's worth of merchandise, however, and it is said this basis of cost that the manufacturer must consider in establishing his terms to the distributor. In particular, he thought the burden of the distributor would be considerably lightened if he were relieved of the harassing tactics followed by some manufacturers. Definite resale policies should be set up and followed by all manufacturers who sell through the distributors, he declared. In particular, the manufacturer should be encouraged to discontinue the practice of using so many outlets that it is impossible for any of them to secure an adequate volume of business.

Alvin M. Smith, Smith-Courtney Co., Richmond, Va., as secretary-treasurer of the Southern association, reported a fine volume of business going to the members of his association, but at a small profit, with some of the members reporting in red. He reported that the cost of doing business, with interest, was 21.92 per cent.

Should Keep Established Prices

"The continued evil from which we suffer is due largely to efforts of these dealers who constantly break down established prices and prevent not only themselves but others from making the fair profits to which we are entitled," said Mr. Smith. "We believe this practice can be broken up only by constant meetings and discussion by those in common territory and gradually, thereby, setting up business principles which will eliminate the underlying evil and business selfishness, the standardization of terms and business practice generally, and the elimination of volume business at the expense of profit."

Mr. Smith strongly recommended standardization of terms granted by distributors, saying the latter must make changes in their terms to conform to changes inaugurated by the manufacturers, particularly those making heavy lines. Mr. Smith also took a strong position in urging that manufacturers refuse to sell to distributors who fail to recognize the established resale prices.

W. S. Hays, executive secretary, Power Transmission association, addressed all three of the mill supply associations, describing the character and scope of the work of his associa-

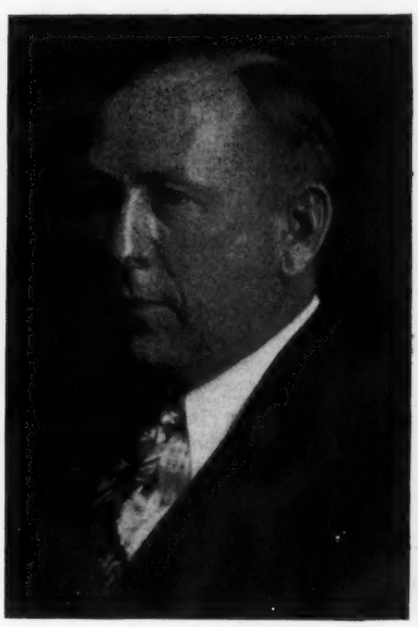
(*Concluded on Page* 1338)

D. D. PEDEN

Elected president, Southern Supply and Machinery Dealers' association

D. C. JONES

Elected president, American Supply and Machinery Manufacturers' association

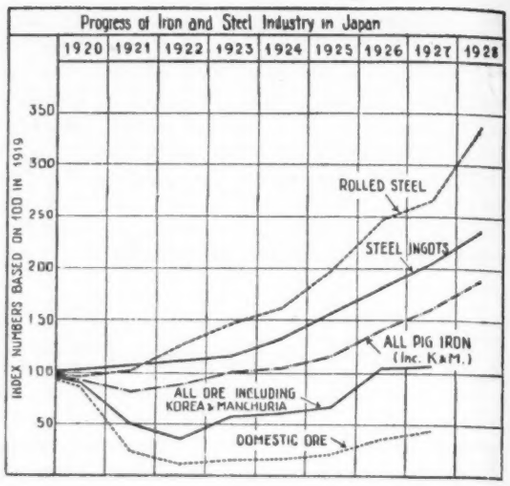


H. H. KUHN

Elected president, National Supply and Machinery Distributors' association

Japan Gains High Steel Record

Production of Pig Iron, Ingots and Rolled Products Increases Under Subsidies—Fewer Companies, Making More Money



Government subsidies and higher world prices are mainly responsible for sharp advances in Japanese output

DETAILS concerning Japan's iron and steel output have become available through official channels, and show the industry of that country is making remarkable progress, although its share of the world's steel ingot production is only about 1.68 per cent. Much of the improvement is ascribed to the action of the Imperial Diet which in 1926 voted subsidies ranging from 3 to 6 Yen per ton. The industry is again becoming profitable following a serious slump which was an aftermath of the World war. At the height of prosperity due to war demands, when Japan was experiencing a speculative fever, 209 steel companies were in existence. Today only 27 worthy of mention remain, and many of these are closed, or as known there, "family" companies. Under sober influence, and with steel demands increasing due to the tendency toward modernization, plus the grant from the government, these companies are supplying more of the domestic requirements.

Pig Iron Output Gains

According to the *Japan Advertiser Annual Review*, output of pig iron and alloy iron rose from 696,111 metric tons in 1925 to 985,000 tons in 1928. This was in Japan proper. Figures for all iron available to Japan within territories under its sovereignty or treaty control, including Korea and Manchuria, show a gain from 931,956 tons in 1925 to 1,507,764 tons in 1928.

Steel ingot production in Japan proper increased from 1,300,203 tons in 1925 to an estimated total of 1,968,000 tons for 1928. No ingots are produced in Korea or Manchuria. Rolled steel production totaled 938,385 tons in 1925, while for 1928 the figure was 1,594,140 tons. Ingots and rolled products in 1928 set a new high record for all time. Output of forgings, castings and alloy steel in 1928 remained about the same as in 1925. The 1928 output of rolled steel amounting to 1,594,140 tons compares with 182,939 tons in 1913, an increase of about 80 per cent. An accompanying table shows the production of various grades of rolled steel, also divided between the government and private works, and the imports for the corresponding years.

According to the *Japan Advertiser* steel had its great boom in Japan in 1919. Prices were soaring and every effort was being made to supply the market. Consequently that year is taken as the basis for index numbers which show the tremendous gains made in the industry.

As may be seen from the graph which accompanies this article, sharp upturns in ingots and rolled steel were evident in 1921 and 1926, the first due to the increased tariff on iron and steel which was enacted to aid the stifling domestic producers and the second to the subsidies granted by the government.

"It must be remembered that Japan places emphasis on iron and steel not only because of their commercial advantages," says the paper. "While the nation would like to be a large exporter of steel, it realizes that this is a goal for the far-distant future. The present objective is to become self-sufficient, so that in case of war Japan will not be without one of the most important sinews of the conflict.

"More than occasionally some writer makes the assertion that Japan claims it needs Manchuria because of the foodstuffs supplied there. This is not the case. Japan, in time of national crisis, could feed its population without privation. It could not, however, produce enough iron ore rapidly and economically to keep its plants turning out necessary munitions.

Asset and Not Liability

"Before the Sino-Japanese war statesmen of this country referred to Korea as a spearhead aimed at the heart of Japan. There was also some recognition at the time that Korea contained better iron ore than Japan. When Korea had been weaned from the starved breast of old China, politicians here declined to abandon the old successful phrase of the spearhead but gave it a new application, directed to Kwantung. The Russo-Japanese war placed Japan in possession of the hard-won rights of Russia in Manchuria. It naturally began to develop the resources of the territory, especially in fields leaving slight room for expansion in Japan proper. Much of Japan's recent progress in the manufacture of iron and steel has been due to developments in Korea and Manchuria. In spite of the fact that Korea is part of the Japanese empire, the statisticians continue to refer to shipments from the province to Japan proper as imports."

In 1928 Japan depended upon foreign countries, including Korea, for 91 per cent of its iron ore, 37 per cent of its pig iron and 33 per cent of its rolled steels. Total Japanese-controlled iron ore production rose from 672,971 metric tons in 1925 to 1,212,169 metric tons in 1927.

While the volume of Japan's iron and steel output ha sbeen rising at a

rapid rate, in iron ore the pace has not been so rapid as domestic demand. Nor has there been any great improvement in the nation's ability to provide pig iron up to its requirements, using domestic and imported ores. In 1914 it imported 36 per cent of the pig iron it needed, in 1928, 37 per cent. The big gains, however, despite greater output have been made in rolled steel turned out of Japanese mills. In 1914 imports accounted for 56 per cent of consumption, in 1928 for but 33 per cent.

Tariff Meets Little Success

"In 1921 the government raised the tariff on iron and steel imports to 3 and 18 yen a ton," says the *Advertiser*. "This did little good. A continuous clamor on the part of the steel men asked tariffs which would make foreign competition out of the question, giving the industry a chance to retrieve its dividend-paying foolishness at the expense of the public.

"The government, however, had wise heads in its councils. It did not see the necessity of penalizing the nation's other industries too severely for the sake of this precocious but sickly infant. For five long years it delayed. Each session of the Diet was besieged by seekers after more protection. Before each session the vernacular papers were crammed with propaganda supporting the cause. But nothing was done until 1926, when the Wakatsuki government granted a system of graduated subsidies.

"The full benefit of these, however, is contingent upon certain improvements in manufacturing methods. The plant which wishes to obtain the maximum figure of yen per ton on its output of steel must make it by the 'hot process,' going from ore to steel in one continuous operation. A straight subsidy would have eliminated the incentive to improve technique. This contingent subsidy left it in.

New Factors Raise Output

"These factors combined to make 1928 the best year experienced by the Japanese steel industry since the slump of 1920. Two or three concerns actually paid small dividends, while others were able to reduce debts to some extent. More than a small share of the credit, of course, must be given to management, which has succeeded in reducing costs."

The percentages of Japan's demands supplied by its domestic production are as follows:

	Ore	Pig Iron	Rolled Steels	Ingot Output Index
1913	27	47	34	100
1917	39	67	45	264
1918	39	73	48	319
1919	28	65	47	325
1920	24	58	36	331
1921	10	64	50	346
1922	4	58	39	360
1923	5	59	52	376
1924	5	54	44	431
1925	6	64	71	509
1926	13	62	61	590
1927	13	61	65	661
1928	9	63	67	772

How Japan Has Increased Rolled Steel Output

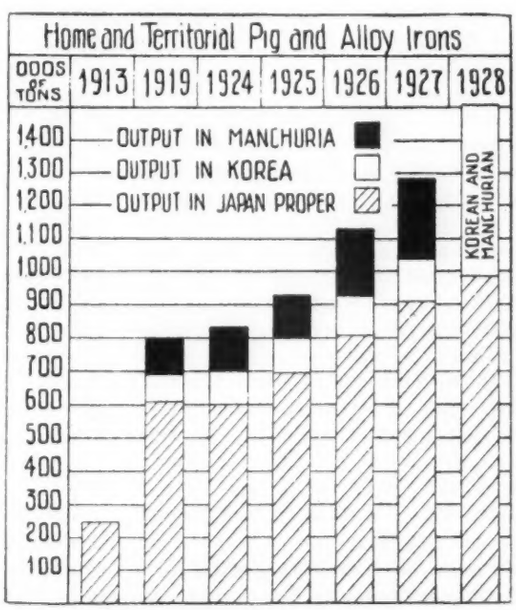
(Metric Tons)

	Bars	Shapes	Plates	Tubes	Rails	Wire rods	Others	Total
1913	76,259		58,010	.....	48,670	.....	.....	182,939
1919	118,607	69,355	143,932	16,370	61,340	22,641	40,785	473,030
1924	276,092	138,141	188,810	34,593	82,965	24,915	18,027	763,543
1925	344,632	137,512	235,558	36,240	138,405	29,809	16,229	938,385
1926	427,569	169,577	280,357	42,509	174,114	21,093	53,275	1,168,494
1927	460,861	208,001	334,754	50,491	178,561	25,386	62,823	1,320,877
1928	555,360	256,292	413,926	67,513	209,771	25,587	65,691	1,594,140

Where Japan Gets Its Steel Supplies

(Metric Tons)

	Government Works	Private Works	Home Total	Imports	Total
Bars (1928)	339,980	445,805	785,785	139,598	925,383
and shapes (1927)	307,590	347,308	654,898	206,161	861,059
Plates (1928)	198,287	204,818	403,105	342,937	746,042
Plates (1927)	176,901	168,721	345,622	300,728	646,350
Rails, etc. (1928)	207,461	4,092	211,553	47,641	259,194
Rails, etc. (1927)	171,939	4,139	176,078	92,950	269,028
Wire rods (1928)	50,668	5,649	56,317	172,644	228,961
Wire rods (1927)	49,032	5,395	54,427	109,086	163,513
Tubes (1928)	.....	59,777	59,777	53,859	113,636
Tubes (1927)	.....	47,780	47,780	52,003	99,783
Others (1928)	16,720	10,932	27,652	4,939	32,591
Others (1927)	17,468	11,255	26,723	4,792	31,515
Total (1928)	813,116	731,073	1,544,189	761,618	2,305,807
Total (1927)	720,930	584,598	1,305,528	765,720	2,071,248



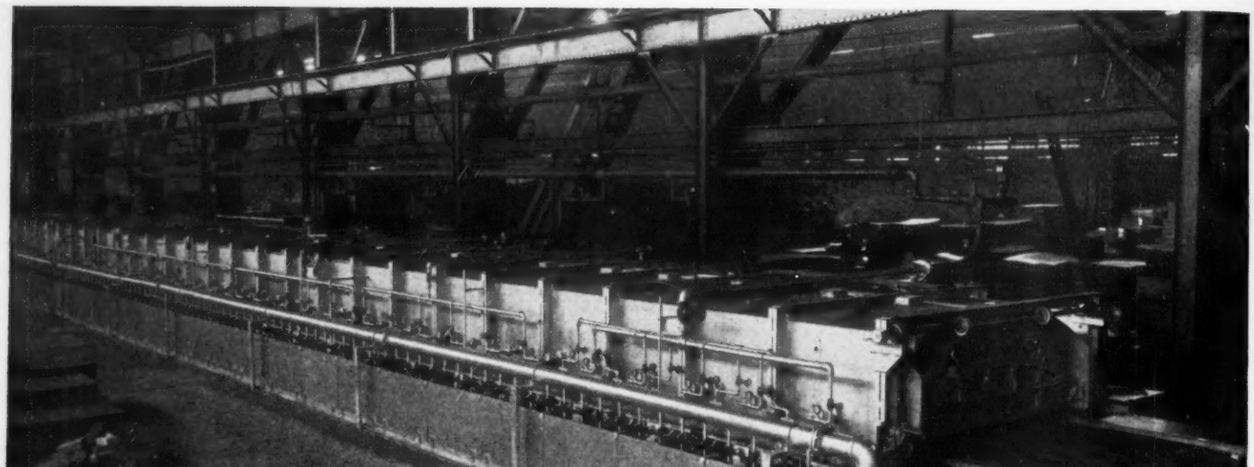
KOREA and Manchuria, part of the Japanese empire, contribute largely to the gain in production of pig iron and ferro-alloys. No ingots or rolled steel are produced in Korea or Manchuria

Sheet Steel Executives Arrange Meeting

Executives of the flat rolled steel industry will meet for their annual informal conference at Hotel Greenbriar, White Sulphur Springs, W. Va., June 24-27. Officials attending the meeting will represent, to a large degree, the nation's steel sheet, hot strip and cold strip productive capacity. Featuring the usual pertinent program now being arranged will be addresses by several speakers of national prominence. A. N. Flora, 511 Terminal Tower, Cleveland, is secretary of the conference.

Sesqui Steel in Hangar

The transportation building, last large building of the group that comprised the Sesquicentennial exposition in Philadelphia, is being dismantled by Philip E. Wright, Stephen Girard building. The building contains 2300 tons of steel, and about one-third is to be erected at the Pitcairn aviation field near Philadelphia.



Furnace installed by West Penn Steel Co. for open annealing full finished sheets. The installation is 190 feet long and 15 feet wide

Conveyor Is Independent in Furnace for Normalizing Sheets

NORMALIZING or open annealing of steel sheets has been developed step by step until at the present time it has reached a high state of perfection. The West Penn Steel Co., Brackenridge, Pa., recently installed a furnace for normalizing full finished steel sheets in which several distinctive features are incorporated.

The installation is 15 feet wide and 190 feet long, including the loading and unloading tables. The hearth alone is 124 feet long and 84 inches wide. This part is of brick construction and is divided into a 72-foot heating chamber and a 52-foot cooling or grain growth control chamber.

The furnace is equipped with a disk-type continuous conveyor, the disk being mounted on water-cooled shafts rotated through a bevel gear drive driven by a 15-horsepower variable speed motor. The furnace proper is of brick, the walls being 13½ inches thick and uninsulated. On top of the arch, however, there is 4½ inches of insulation and the floor under the hearth, also carries this amount of insulation. The furnace side walls are supported by ⅝-inch steel plates and buckstays set on four foot centers.

The most distinctive improvement in this furnace is the method of supporting the conveyor shafts. The entire conveyor and driving mechanism is supported independent of the furnace construction. Furthermore the concrete foundation carrying the conveyor supports is separate and distinct from the concrete foundation carrying the weight of the furnace. The chief advantage of this lies in the fact that free play is given the forces of expansion and contraction without in any way affecting the proper and continuous alignment of the conveyor system.

Underslung Bearing Used

Cast iron columns on each side of the furnace, carry beams from which the shaft bearings are hung in an inverted position, that is, the shafts are supported by the cap of the bearing rather than base. The advantage of the underslung bearing is that it permits easy and quick removal of a shaft without disturbing the furnace setting. The removal is made by simply dropping the cap from the bearing.

The conveyor disks are of special alloy steel, 16 inches in diameter, the rims being convex and 2 inches wide. The conveyor can be operated throughout a wide range of speeds so that sheets will pass through the furnace at from 9 to 36 feet per minute, which affords a very flexible control over the time temperature cycle.

The heating section of the furnace is divided into four zones for controlling the rate of heating. The first is known as the preheating zone and here the sheets are raised from room temperature to 1700 degrees Fahr. and this temperature is maintained for an appreciable period in the second zone. The sheets are kept at temperatures of 1800 and 1900 degrees Fahr. respectively in zones three and four for definite periods of time. Each zone is provided with an automatic temperature control.

The rate of heat transfer varies proportionally as the fourth power of the absolute temperatures of the radiating body and receiving medium, in this case the brick walls of the furnace and the steel sheets being treated. Heat absorption, in this kind of work, is at the rate of one-eighth inch in 5 minutes. Hence, with single sheets passing through and the system of over and under firing, sheets ¼-inch in thickness could be brought from room temperature to 1600 degrees Fahr. in approximately 5 minutes.

An improvement in the method of treating the sheet through its range is provided in the manner of controlling the cooling or grain growth control section of the furnace. Control of the rate of cooling is effected

through a combination of two important methods. The first consists of proportioning the rate of flow of the products of combustion into and through the cooling section, as required by the varying cooling rates. These cooling rates are exactly proportioned to produce certain combinations of physical properties desired in the work. Control of the amount of products of combustion admitted to the cooling chamber is made possible by a combination arrangement of dampers and bleeder valve. In any event this arrangement always allows a sufficient quantity of gas to pass through to insure minimum of scaling.

The second method used in the grain growth control is an auxiliary burner system which system is used when turning out sheets of such characteristics that a particularly and carefully controlled cooling rate is necessary. The range of control therefore, during the cooling period, runs from a maximum when a minimum of the products of combustion are allowed to flow through, to a minimum cooling rate when all of the products of combustion are admitted and the auxiliary firing system is operated.

The furnace was designed and built by the Surface Combustion Co., Toledo, O.

Foundrymen Enroute To International Meet

Forty-one members of the American Foundrymen's association sailed from New York on the CARMANIA for London, May 10, to attend the Third International Foundrymen's congress. Twenty-six others will follow on various ships and the entire party will assemble in London for the congress, June 9. The main party, sailing on the CARMANIA and some of those following on the BERENGARIA, May 15, will make an extensive preconvention tour of Great Britain which will include leading foundry centers and points of historical interest.

The delegation is headed by S. T. Johnston, S. Obermayer Co., Chicago, president, American Foundrymen's association. Among other leaders of the delegation accompanying Mr. Johnston are Fred Erb, Erb-Joyce Foundry Co., Detroit, vice president, A. F. A.; C. E. Hoyt, executive secretary-treasurer, A. F. A.; H. Cole Estep, the Penton Publishing Co., Cleveland, chairman, A. F. A. Committee on International Relations; S. W. Utley, Detroit Steel Casting Co., director, A. F. A.; A. E. Hageboeck, Frank Foundries Corp., Moline, Ill., director, A. F. A.; R. E Kennedy, technical secretary, A. F. A., and D. M. Avey, editor-in-chief, *The Foundry*, Cleveland.

Scrap Trade Ready For Trade Conference

More than 50 representatives of the scrap iron and steel industry and consuming mills attended a preliminary conference in Washington, May 13, in connection with the trade practice conference to be held under the auspices of the federal trade commission in Pittsburgh, May 23. M. M. Flannery, chief of the trade practice division of the commission attended the conference.

The mills offered no serious objection to the tentative resolutions of the scrap trade, but offered suggestions. Some of the principal questions discussed which will be put in the form of resolutions for the later conference included that of top dressing of cars, commercial bribery, failure to deliver or fulfill contract and inducing breach of contract.

The conference took up also the shipping of material other than that called for by the contract and of the billing of one grade of scrap as a higher commodity. Discussion was held on the circulating of the industry with price quotations containing indefinite language, the intent of which is to disturb the market.

Will Make Marine Steel

Harbor Marine Steel Corp. has been organized by consolidation of R. G. Harry Inc., 136 Liberty street, New York, and Key City Bolt & Spike Works, Bayonne, N. J. The company will manufacture heavy hardware for waterfront work, marine and ship repairs, subway construction, bridge and other activities in which heavy timbering is a factor. R. G. Harry is president, R. B. Morse vice president, and J. G. Orr secretary and treasurer. Directors include R. B. Morse, Thomas C. Sheehan, E. L. Crooker, Clarence McMillar, Lyman A. Congdon, R. G. Harry and J. G. Orr.

Michael V. Bonomo of L. Schiavone & Bonomo Bros., Jersey City, N. J., and Abraham Isaac, Elizabeth, N. J., were re-elected president and chairman respectively, of the New Jersey chapter of the Institute of Scrap Iron & Steel Inc., at the annual meeting of the chapter held May 6.

American Industrial Equipment Is Winning Its Way in World Trade

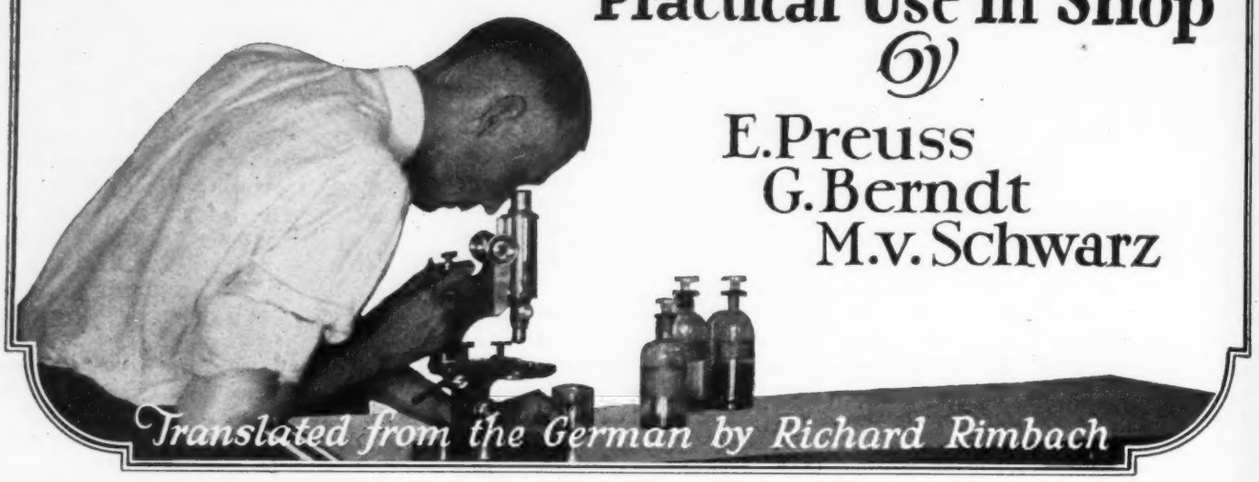
WORLD-WIDE demand for American machinery is the result not only of smart salesmanship but also is recognition of the admitted superiority of American industrial equipment, declared Dr. Julius Klein, assistant secretary of commerce, in an address May 10 at Washington before a conference on industrial advertising and selling under auspices of the National Industrial Advertisers' association, the industrial committee of the Association of National Advertisers Inc. and the Associated Business Papers Inc. in conjunction with the department of commerce.

In the machinery manufacturing industry, according to Dr. Klein, an output of $5200 per worker per year is obtained, against only $1500 in Germany and in England. This is an increase of 40 per cent in the United States since 1913, about equal to the price changes in the period, while for English workers declined 20 per cent and German workers dropped off 40 per cent.

Co-operation of business men with the government in the general cause of advancing industry was urged by Secretary of Commerce Lamont. According to Grosvenor N. Jones, chief of the finance and investment division, department of commerce, United States is experiencing an industrial revolution of internal combustion engineering, electrical development and chemical research which necessitates expanding for markets.

Nelson S. Greensfelder, president, National Industrial Advertisers' association, stressed the distinction between industrial and consumer selling, emphasized the position of industrial advertising in the field of industrial selling, and presented the details of domestic and foreign industrial selling. Wallace Thompson, editor, *International Engineering*, spoke on the opportunity for capitalizing on the thought that the world is looking to the United States for ideas and that the world and not the United States is the market today. Scientific industrial selling was discussed by Dr. Frank M. Surface, assistant director, bureau of foreign and domestic commerce.

Metallography Simplified for Practical Use In Shop



By

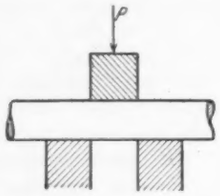
E. Preuss
G. Berndt
M. v. Schwarz

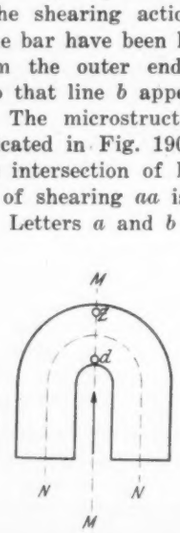
Translated from the German by Richard Rimbach

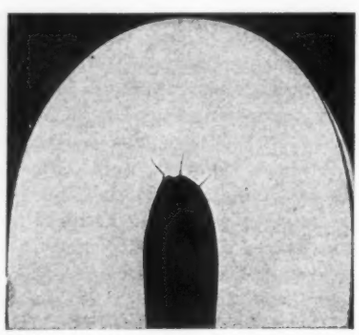
Chap. XII—Rolling and Cold Working of Steel (Continued)

MORE examples of deformations below 625 degrees Cent. are given in the accompanying illustrations. Fig. 188 represents a flat iron bar bent to a U-shape and in this connection it must be mentioned here that cracks can easily occur at the point of highest pressure, as for example Fig. 189, which shows a longitudinal section through a bent test bar. At the points situated outside the natural axis *NN*, at *z*, the crystals must elongate considerably due to the high tensile stress, as Fig. 195 proves. Crystals perpendicular to the direction of the arrow indicated in Fig. 188 clearly appear elongated. Inversely, all crystals in all places below the neutral line *NN*, will be pressed flat due to pressure stress and in such a manner that their longitudinal direction lies in the direction of the diameter of the curvature. This is proved by Fig. 196, which shows the structure at the point *d* of Fig. 188. Fig. 187 represents a round bar, which is stressed in a shear by the force *P* in two planes. Its center, as Fig. 190 shows, is pressed downward. Due to the shearing action the two ends of the bar have been lifted somewhat from the outer ends of their support so that line *b* appears curved upwards. The microstructure of the metal indicated in Fig. 190 by a circle at the intersection of line *b* with the plane of shearing *aa* is shown in Fig. 194. Letters *a* and *b* denote the same lines in both illustrations. It can be seen at *c* how near the shearing plane all crystals have been completely stretched lengthwise, and how this area, due to the roughening of the structure by the strong etching and deformation, reflects little light and consequently appears darker. At *d*, however, where the free end has been resting on the support, *A*, the original crystal structure, only slightly changed, still can be recognized.

Figs. 191 and 193, of which the latter shows the area *bc* of Fig. 191 in larger magnification, prove how extensive a deformation the low-carbon steel can stand in certain cases before a separation of the crystals or a formation of cracks takes place. The velocity of deformation and the temperature are of considerable influence. Below certain temperatures, carbon steel is brittle when subjected to impact stresses. The critical temperature ranges and velocities recently have been investigated. The specimens shown in Figs. 191 and 193 rep-







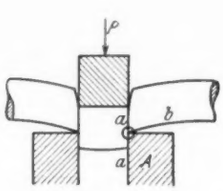


Fig. 187 (*Left*)—*Diagram of shearing process.* *Fig* 188 (*Top Center*)—*Bent flat rod.* *Fig.* 189 (*Bottom Center*)—*Cracks caused by pressure in the longitudinal section through a bent sample.* (*According to Brearley-Schaefer*). *Fig.* 190 (*Right*)—*Diagram of the shearing process*

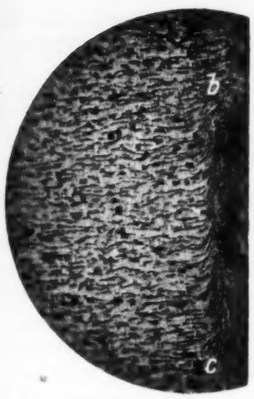


Fig. 191 (*Left*)—*Distortion of crystals by planed chip. Etched microscopically.* X 60. *Fig.* 192 (*Center*)—*Locomotive wheel tire. Distortion of crystals on the tread of the tire in longitudinal section. Etched microscopically.* X 95. (*O. Bauer and E. Wetzel*). *Fig.* 193 (*Right*)—*Same as Fig.* 191, *but using larger magnification.* X 350

resent a piece of soft steel, the surface of which has been planed off. A chip stuck at *b* was carried along the surface by the planing tool and effected a distortion of crystals. Further, Fig. 191 shows that the crystals not distorted by the chip are stretched in a direction vertical to the edge *bc*. This indicates that the steel was rolled in this direction at temperatures below 625 degrees Cent. Such distortions are frequently found on surfaces of metallographic sections which have not been carefully prepared. They originate from filing, especially if the material "smears" and sticks between the teeth of the file.

In railroad wheels, especially locomotive and tender wheels, the crystals on the treads of the tires can be subjected to such pronounced cold working due to high wheel pressures, impact stresses or violent braking, that they, also, suffer considerable distortions and elongations, peeling from the material below it. When subjected to less stress no peeling occurs. [56] Fig. 197 shows the normal

[56] O. Bauer and E. Wetzel, *Stahl und Eisen*, Vol. 29, page 226, 1911.

Fig. 194—*Cross section showing the distortion of crystals in the shearing process. Etched microscopically.* X 90

structure of such tires at a spot not over-stressed and Fig. 192 at a spot on the tread where peeling occurred due to excessive stress. In the latter, the crystals elongated by high stresses at low temperatures can be recognized clearly. The peeling of the surface had been originally ascribed by the particular railway management to a material with blow holes or unequal hardness. That this view was incorrect and that peeling was due rather to the considerable cold working, can be concluded from the nature of the structure as well as from the fact that the greater hardness of the tires on the treads compared with the rest of the tire, could be removed by annealing.

The effect of mechanical cold working again, however, can be removed by heating or annealing the steel; that is, the increased tensile strength is again reduced and the elongation increases so that the toughness of the material increases considerably. Herewith the crystals once more assume their normal position and frequently also a subdivision of the crystals as well as a finer structure, occurs. This is called regeneration. The favorable influence of heating begins, according to E. Heyn and O. Bauer, to make itself noticeable in a low-carbon iron only on heating above 400 degrees

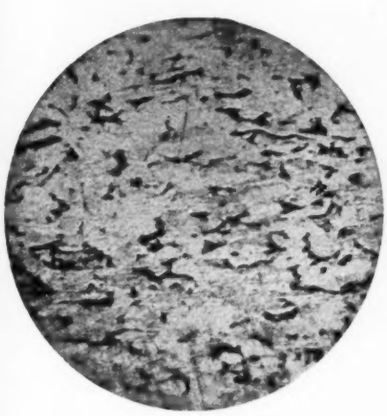


Fig. 195 (*Left*)—*Elongated crystal grains at the point Z in Fig.* 188. *Etched microscopically.* X 70. *Fig.* 196 (*Center*)—*Compressed crystals at the point d in Fig.* 188. *Etched microscopically.* X 70. *Fig.* 197 (*Right*)—*Locomotive wheel tire, normal structure in longitudinal section. Etched microscopically.* X 94. (*O. Bauer and E. Wetzel*)

Fig. 198—*Strongly elongated ferrite crystals at the base of the thread of a cold-rolled steel screw in longitudinal section. Etched microscopically. X* 150

Cent. This holds good particularly for the notch toughness which, for temperatures up to 300 degrees Cent. even decreases. For this reason, boiler plates, the structure of which has been disturbed in some way, as by careless knocking off the boiler refractory have particularly low resistance to impact, aging phenomena, blue-brittleness and recrystallization.

On heating to 600 or 625 degrees Cent. the effect of cold working found in cold worked steels is overcome. The tensile strength and elongation again assume their normal value, and the crystals are shortened considerably even if the original elongation still is plainly visible. The inner stresses, however, disappear completely at about 500 degrees Cent.[57] Only after annealing for half an hour above 900 degrees Cent. a few degrees above the upper transformation temperature is complete recrystallization obtained and every trace of previous elongation of the grains obliterated.

Fig. 198 shows the greatly elongated ferrite crystals at the bottom of the thread of a cold-rolled screw of carbon steel. After annealing, the structure has been perfectly homogeneized as indicated by Fig. 199 which represents an area corresponding to Fig. 198.

[57]E. Heyn, Mitteil. d. Mat. Pruef. Amtes. Vol. 35, page 2, 1917.

Tool Foremen Will Meet

Literature has gone forth announcing the 1929 convention and exhibition of the American Railway Tool Foreman's association and Supply association to be held at Hotel Sherman, Chicago, Sept. 11-13. Entertainment will be provided and tool foremen attending the convention will meet to work out a standarization program. Railroads throughout the country will be represented. C. C. Ziegler, with headquarters at 611 West Washington boulevard, Chicago, is secretary and treasurer of the association.

To Hold Joint Meeting

For the second consecutive year the oil and gas power division of the American Society of Mechanical Engineers will hold its national meeting at State College, Pa., in conjunction with Pennsylvania State college. Papers will cover high-speed oil engine design, high-speed oil engine pumps and injection valves, combustion in high-speed oil engines and recent developments in commercial application of high-speed oil engines. Diesel engine users will find the paper on "Modern Refinement in Diesel Power Plants," of particular interest. Another subject of general interest is a summary of some of the results of the Penn State fuel oil spray research which has been in progress the past year. Among other papers presented will be "Marine Diesel and Motorshipping Progress" and "Diesel Engine Operating Costs."

New Law Authorizes the Welding of Buildings

Recent passage of a law by the Pennsylvania state legislature permits the use of welding in construction of buildings. The new law gives in detail a building code for cities of the first class and in this code is a section allowing commissioners of buildings in such cities of that state to adopt welding as an erection method.

"This type of construction," says Frank P. McKibben, nationally known authority on the use of welding in building construction, "has been successfully applied to at least 50 buildings in this country, varying in height from one to eleven stories, the one containing the greatest amount of steel being a factory building constructed by the General Electric Co. in Philadelphia."

Numerous municipalities, according to McKibben, are at present revising their building codes to permit the erection of welded buildings. He mentions two model codes now available, one recently adopted by the American Welding society and the other, that of the Pacific Coast Building Officials conference.

Division of simplified practice, department of commerce, Washington, has called a meeting at Washington, May 22, to consider a simplification program for hospital plumbing fixtures.

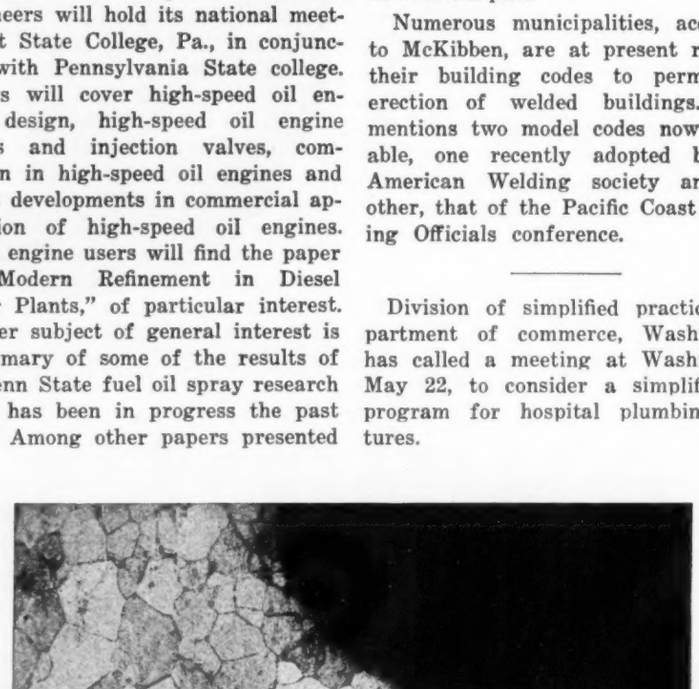


Fig. 199—*Same as in Fig.* 198, *but annealed. Shows complete regeneration of the structure. Etched microscopically. X* 150

Structural Rates Are Focal Point of Metals Tariff Schedule

Bill Revising Act of 1922 Not Likely to Pass House Before June 1—Republican Leaders Caucus—Democrats Begin Attack

By Lynne M. Lamm

WASHINGTON, May 14.—The long looked for tariff fight is at hand. The bill revising the act of 1922 now is under consideration by the house of representatives and as yet no definite agreement has been reached as to the length of debate on the floor of the lower house of congress. May 23 has been mentioned as a possible date on which the house might be able to begin voting, but that is indefinite and those who have followed the situation believe it will certainly be June 1 before the bill passes the house.

A Republican caucus has been held, but it was impossible to reach any agreement, owing to varying views. Further caucuses will be held in the hope some definite rule can be brought out which will expedite passage of the bill. Republican leaders have stated they will make no effort to enforce any "gag" rule.

The iron and steel industry has not made any strenuous demands for additional changes in the metals schedule up to this time. While there is some feeling about the pig iron rate and the fact that manganese did not go on the free list, it is understood representatives of the industry here will put all of their efforts into getting some change in paragraph 312, which is the structural steel section of the bill. There is considerable dissatisfaction with this paragraph and strenuous efforts are being made to see if some amendment cannot be made on the floor through the ways and means committee.

Will Restrict Amendments

Representative Tilson, of Connecticut, majority leader of the house, has stated that certain groups will be given a chance to offer amendments to the bill. Such amendments probably will first be brought before the ways and means committee and supported on the floor by the committee as committee amendments. During the 1922 tariff enactment a rule was adopted in the house that none but committee amendments would be discussed and no individual member could offer any amendment to the bill. An effort is being made to invoke such a rule now.

So far it has been agreed by house leaders that there will be votes on certain individual items in the bill about which there is most dispute.

Following a conference with President Hoover, Senator Reed Smoot, chairman of the senate finance committee, has stated that hearings will begin a week after the bill reaches the senate. These hearings will last about three weeks, and the week following the bill will be reported back to the senate.

Cordell Hull, a leading Democratic member of the house ways and means committee, has attacked the metals schedule on the floor of the house. He said, in part:

"The iron and steel industry, the basis of most all other industries, should carry rates as low as reasonably possible. Many rates could be removed and some lowered. The chief trouble in pig iron has been the costlier production by the merchant furnace compared with steelworks producing their own iron. This pig iron tariff plea is a pitiable commentary on the industry, with its unexcelled production plants. Some rates in the metals schedule are grossly excessive."

Important Metals Paragraphs of Tariff Bill

HEREWITH is presented the metals section of the tariff bill introduced in the house at Washington May 7, with paragraphs relating to electric storage batteries, table ware, clocks and watches, fire arms, belt buckles and the nonferrous metals omitted for the sake of brevity. In the latter there are practically no changes.

Par. 301. Iron in pigs and iron kentledge, $1.12½ per ton; spiegeleisen containing more than 1 per centum of carbon, 75 cents per ton; wrought and cast scrap iron, and scrap steel, 75 cents per ton: Provided, That spiegeleisen for the purposes of this Act shall be an iron manganese alloy containing less than 30 per centum of manganese: Provided further, That nothing shall be deemed scrap iron or scrap steel except secondhand or waste or refuse iron or steel fit only to be remanufactured: Provided further, That an additional duty of $1 per pound on the vanadium content in excess of one-tenth of 1 per centum, 72 cents per pound on the tungsten content in excess of two-tenths of 1 per centum, 65 cents per pound on the molybdenum content in excess of two-tenths of 1 per centum, and 4 cents per pound on the chromium content in excess of two-tenths of 1 per centum, shall be levied, collected, and paid on all the foregoing.

Par. 302. (a) Manganese ore or concentrates containing in excess of 30 per centum of metallic manganese, 1 cent per pound on the metallic manganese contained therein.

(b) Molybdenum ore or concentrates, 35 cents per pound on the metallic molybdenum contained therein.

(c) Tungsten ore or concentrates, 50 cents per pound on the metallic tungsten contained therein.

(d) Ferromanganese containing more than 1 per centum of carbon, 1⅞ cents per pound on the metallic manganese contained therein: Provided, That ferromanganese for the purposes of this Act shall be such iron manganese alloys as contain 30 per centum or more of manganese.

(e) Manganese metal, manganese silicon, manganese boron, and ferromanganese and spiegeleisen containing not more than 1 per centum of carbon, 1⅞ cents per pound on the manganese contained therein and 15 per centum ad valorem.

(f) Ferromolybdenum, metallic molybdenum molybdenum powder, calcium molybdate, and all other compounds and alloys of molybdenum, 50 cents per pound on the molybdenum contained therein and 15 per centum ad valorem.

(g) Ferrotungsten, metallic tungsten, tungsten powder, tungstic acid, and all other compounds of tungsten, 60 cents per pound on the tungsten contained therein and 25 per centum ad valorem.

(h) Ferrochromium tungsten, chromium tungsten, chromium cobalt tungsten, tungsten nickel,

and all other alloys of tungsten not specially provided for, 60 cents per pound on the tungsten contained therein and 25 per centum ad valorem.

(i) Ferrosilicon, containing 8 per centum or more silicon and less than 60 per centum, 2 cents per pound on the silicon contained therein; containing 60 per centum or more of silicon and less than 80 per centum, 3 cents per pound on the silicon contained therein; containing 80 per centum or more of silicon and less than 90 per centum, 4 cents per pound on the silicon contained therein; containing 90 per centum or more of silicon, and silicon metal, 8 cents per pound on the silicon contained therein.

(j) Silicon aluminum, aluminum silicon, alsimin, ferrosilicon aluminum, and ferroaluminum silicon, 5 cents per pound.

(k) Ferrochrome or ferrochromium containing 3 per centum or more of carbon, 3½ cents per pound on the chromium contained therein; ferrochrome or ferrochromium containing less than 3 per centum of carbon, and chrome metal or chromium metal, 30 per centum ad valorem.

(l) Boron carbide, chromium carbide, vanadium carbide, chromium nickel, chromium silicon, chromium vanadium, and manganese copper, 25 per centum ad valorem.

(m) Ferrophosphorus, ferrotitanium, ferrovanadium, ferrouranium, ferrozirconium, zirconium ferrosilicon, ferroboron, ferroaluminum vanadium, ferromanganese vanadium, ferrosilicon vanadium, and ferrosilicon aluminum vanadium, 25 per centum ad valorem.

(n) Barium, boron, calcium, columbium or mobium, strontium, thorium, titanium, uranium, vanadium, zirconium, alloys of two or more of these metals, or alloys not specially provided for of one or more of these metals with one or more of the metals aluminum, chromium, cobalt, copper, manganese, nickel, or silicon, 25 per centum ad valorem.

(o) All alloys used in the manufacture of steel or iron, not specially provided for, 25 per centum ad valorem.

(p) Cerium metal, $2 per pound.

(q) Ferrocerium and all other cerium alloys, $2 per pound and 25 per centum ad valorem.

(r) Ductile tantalum metal or ductile nonferrous alloys of tantalum metal, 40 per centum ad valorem.

Par. 303. Muck bars, pieces thereof except crop ends, bar iron, and round iron in coils or rods, iron in slabs, blooms, loops, or other forms less finished than iron in bars and more advanced than pig iron, except castings; granular or sponge iron; all the foregoing, valued at not over 1 cent per pound, two-tenths of 1 cent per pound; valued above 1 cent and not above 1½ cents per pound, three-tenths of 1 cent per pound; valued above 1½ and not above 2½ cents per pound, five-tenths of 1 cent per pound; valued above 2½ and not above 3½ cents per pound, eight-tenths of 1 cent per pound; valued above 3½ and not above 5 cents per pound, 1 cent per pound; valued above 5 cents per pound, 1½ cents per pound.

Rates on Semifinished

Par. 304. Steel ingots, cogged ingots, blooms and slabs, by whatever process made; die blocks or blanks; billets and bars, whether solid or hollow; shafting; pressed, sheared, or stamped shapes, not advanced in value or condition by any process or operation subsequent to the process of stamping; hammer molds or swaged steel; gun-barrel molds not in bars; concrete reinforcement bars; all descriptions and shapes of dry sand, loam or iron molded steel castings, sheets and plates and steel not specially provided for; all the foregoing valued at not over 1 cent per pound, two-tenths of 1 cent per pound; valued above 1 cent and not above 1½ cents per pound, three-tenths of 1 cent per pound; valued above 1½ and not above 2½ cents per pound, five tenths of 1 cent per pound; valued above 2½ and not above 3½ cents per pound, eight-tenths of 1 cent per pound; valued above 3½ and not above 5 cents per pound, 1 cent per pound; valued above 5 and not above 8 cents per pound, 1 7/10 cents per pound; valued above 8 and not above 12 cents per pound, 2½ cents per pound; valued above 12 and not above 16 cents per pound, 3½ cents per pound; valued above 16 cents per pound, 20 per centum ad valorem: Provided, That on circular saw plates there shall be levied, collected, and paid an additional duty of one-fourth of 1 cent per pound: Provided further, That on hollow bars and hollow drill steel valued at more than 4 cents per pound there shall be levied, collected, and paid an additional duty of 1 3/10 cents per pound.

Par. 305. In addition to the rates of duty provided for in paragraphs 303, 304, 307, 308, 312, 313, 315, 316, 317, 318, 319, 322, 323, 324, 327, and 328 of this schedule there shall be levied, collected, and paid on all steel or iron, in all forms and shapes, by whatever process made, and by whatever name designated, whether cast, hot or cold rolled, forged, stamped, or drawn:

(1) A duty of 8 per centum ad valorem if such steel or iron contains more than one-tenth of 1 per centum of vanadium, or more than two-tenths of 1 per centum of tungsten, molybdenum, or chromium, or more than six-tenths of 1 per centum of nickel, cobalt, or any other metallic element used in alloying steel or iron: Provided, That phosphorus shall not be considered as alloying material unless present in the steel or iron in excess of 5 per centum, nor shall manganese or silicon be so considered unless either is present in the steel in excess of 1 per centum or unless either is present in the iron in excess of 3 per centum; and

(2) an additional cumulative duty of $1 per pound on the vanadium content in excess of one-tenth of 1 per centum, 72 cents per pound on the tungsten content in excess of two-tenths of 1 per centum, 65 cents per pound on the molybdenum content in excess of two-tenths of 1 per centum, and 4 cents per pound on the chromium content in excess of two-tenths of 1 per centum.

Steel Is Defined

Par. 306. All metal produced from iron or its ores which is cast and malleable, or whatever description or form, without regard to the precentage of carbon contained therein, whether produced by cementation, or converted, cast, or made from iron or its ores, by the crusible, electric, Bessemer, Clapp-Griffith, pneumatic, Thomas-Gilchrist, basic, Siemens-Martin, or open-hearth process, or by the equivalent of either, or by a combination of two or more of the processes, or their equivalents, or by any fusion or other process which produces from iron or its ores a metal either granular or fibrous in structure, which is cast and malleable, excepting what is known as malleable-iron castings shall be classed and denominated as steel.

Par. 307. Boiler or other plate iron or steel, except crucible plate steel and saw plate steel, not thinner than one hundred and nine one-thousandths of one inch, cut or sheared to shape or otherwise, or unsheared, and skelp iron or steel sheared or rolled in grooves, valued at 1 cent per pound or less, seven-twentieths of 1 cent per pound; valued above 1 cent per pound and not above 3 cents per pound, five-tenths of 1 cent per pound; valued at over 3 cents per pound, 20 per centum ad valorem: Provided, That all sheets or plates of iron or steel thinner than one hundred and nine one-thousandths of one inch shall be subject to duty as iron or steel sheets.

Par. 308. Sheets of iron or steel, common or black, of whatever dimensions, and skelp iron or steel, valued at 3 cents per pound or less, thinner than one hundred and nine one-thousandths and not thinner than thirty-eight one-thousandths of one inch, forty-five one-hundredths of 1 cent per pound; thinner than thirty-eight one-thousandths and not thinner than twenty-two one-thousandths of one inch, fifty-five one-hundredths of 1 cent per pound; thinner than twenty-two one-thousandths and not thinner than ten one-thousandths of one inch, seventy-five one-hundredths of 1 cent per pound; thinner than ten one-thousandths of one inch, eighty-five one-hundredths of 1 cent per pound; corrugated or crimped, seventy-five one-hundredths of 1 cent per pound; all the foregoing when valued at more than 3 cents per pound, 20 per centum ad valorem: Provided, That all sheets or plates of common or black iron or steel not thinner than one hundred and nine one-thousandths of one inch shall be subject to duty as plate iron or plate steel.

Par. 309. All iron or steel sheets, plates, bars and rods, and all hoop, band, or scroll iron or steel, excepting what are known commercially as tin plates, terneplates, and taggers tin, when galvanized or coated with zinc, spelter, or other metals, or any alloy of those metals, shall be subject to two-tenths of 1 cent per pound more duty than if the same was not galvanized or coated; sheets or plates composed of iron, steel, copper, nickel, or other metal with layers of other metal or metals imposed thereon by forging, hammering, rolling, or welding, 30 per centum ad valorem; thermostatic metal in sheets, plates, or other forms, 50 per centum ad valorem; sheets and plates of iron or steel, polished, planished, or glanced, by whatever name designated, 1¼ cents per pound: Provided, That plates or sheets of iron or steel, by whatever name designated, other than polished, planished, or glanced, herein provided for, which have been pickled or cleaned by acid, or by any other material or process, or which are cold-rolled, smoothed only, not polished, shall be subject to two-tenths of 1 cent per pound more duty than the rates provided on corresponding thicknesses of common or black sheet iron or steel.

Par. 310. Sheets or plates of iron or steel, or taggers iron or steel, coated with tin or lead, or with a mixture of which these metals, or either of them, is a component part, by the dipping or any other process, and commercially known as tin plates, terneplates, and taggers tin, 1 cent per pound.

Par. 311. No article not specially provided for which is wholly or partly manufactured from tin plate, terneplate, or sheet, plate, hoop, band, or scroll iron or steel, or of which such tin plate, terneplate, sheet, plate, hoop, band, or scroll iron or steel shall be the material of chief value, shall be subject to a lower rate of duty than that imposed on the tinplate, terneplate, or sheet, plate, hoop, band, or scroll iron or steel from which it is made, or of which it shall be the component thereof of chief value.

Par. 312. Beams, girders, joists, angles, channels, car-truck channels, tees, columns and posts, or parts or sections of columns and posts, deck and bulb beams, and building forms, together with all other structural shapes of iron or steel, not assembled, manufactured or advanced beyond hammering, rolling, or casting, one-fifth of 1 cent per pound; any of the foregoing machined, drilled, punched, assembled, fitted, fabricated for use, or otherwise advanced beyond hammering, rolling, or casting, 20 per centum ad valorem; sashes, frames, and building forms, if iron or steel, 25 per centum ad valorem; sheet piling, one-fifth of 1 cent per pound.

Par. 313. Hoop, band, and scroll iron or steel not specially provided for, valued at 3 cents per pound or less, eight inches or less in width, and thinner than three-eighths and not thinner than one hundred and nine one-thousandths of one inch, twenty-five one-hundredths of 1 cent per pound; thinner than one hundred and nine one-thousandths and not thinner than thirty-eight one-thousandths of one inch, thirty-five one-hundredths of 1 cent per pound; thinner than thirty-eight one-thousandths of one inch, fifty-five one-hundredths of 1 cent per pound: Provided, That barrel hoops of iron or steel, and hoop or band iron, or hoop or band steel, flared, splayed, or punched, with or without buckles or fastenings, shall pay no more duty than that imposed on the hoop or band iron or steel from which they are made; bands and strips of iron or steel, whether in long or short lengths, not specially provided for, 25 per centum ad valorem.

Par. 314. Hoop or band iron, and hoop or band steel, cut to lengths, or wholly or partly manufactured into hoops or ties, coated or not coated with paint or any other preparation, with or without buckles or fastenings, for baling cotton or any other commodity, one-fourth of 1 cent per pound.

Par. 315. Wire rods: Rivet, screw, fence, and other iron or steel wire rods, whether round, oval, or square, or in any other shape, nail rods and flat rods up to six inches in width ready to be drawn or rolled into wire or strips, all the foregoing in coils or otherwise, valued at not over 4 cents per pound, three-tenths of 1 cent per pound; valued at over 4 cents per pound, 20 per centum ad valorem: Provided, That all round iron or steel rods smaller than twenty one-hundredths of one inch in diameter shall be classified and dutiable as wire: Provided further, That all iron or steel wire rods which have been tempered or treated in any manner or partly manufactured shall be subject to an additional duty of one-fourth of 1 cent per pound: Provided further, That on all iron or steel bars and rods of whatever shape or section which are cold rolled, cold drawn, cold hammered, or polished in any way in addition to the ordinary process of hot rolling or hammering, there shall be paid one-eighth of 1 cent per pound in addition to the rates provided on bars or rods of whatever section or shape which are hot rolled; and on all strips, plates, or sheets of iron or steel of whatever shape, other than polished, planished, or glanced sheet iron or sheet steel, which are cold hammered, blued, brightened, tempered, or polished by any process to such perfected surface finish or polish better than the grade of cold rolled, smoothed only, there shall be paid two-tenths of 1 cent per pound in addition to the rates provided on plates, strips, or sheets of iron or steel of common or black finish of corresponding thickness or value.

Wire on Ad Valorem Basis

Par. 316. Round iron or steel wire, not smaller than ninety-five one-thousandths of one inch in diameter, three-fourths of 1 cent per pound; smaller than ninety-five one-thousandths and not smaller than sixty-five one-thousandths of one inch in diameter, 1¼ cents per pound; smaller than sixty-five one-thousandths of one inch in diameter, 1½ cents per pound: Provided, That all the foregoing valued above 6 cents per pound shall be subject to a duty of 25 per centum ad valorem; all wire composed of iron, steel, or other metal, not specially provided for (except gold, silver, or platinum); all flat wires and all steel in strips not thicker than one-quarter of one inch and not exceeding sixteen inches in width, whether in long or short lengths, in coils or otherwise, and whether rolled or drawn through dies or rolls, or otherwise produced, 25 per centum ad valorem: Provided, That all wire of iron, steel, or other metal coated by dipping, galvanizing sherardizing, electrolytic, or any other process with zinc, tin, or other metal, shall be subject

(*Continued on Page* 1363)

Use of Scrap in Steel and Iron Mixtures

(*Concluded from Page* 1322)

for a man to handle. Sulphur and phosphorus should be slightly lower than is required in the castings; usually both should be under 0.04 per cent.

It is convenient to have a pile of high carbon scrap, such as springs with about 1.00 per cent carbon, as the bulk of the scrap will be low carbon—about 0.20 per cent.

In the acid process the steel scrap must not be too rusty. Material under ¼-inch in thickness is likely to be badly rusted, and will be too bulky to get much weight in the furnace.

Steel scrap for the basic electric process is more easily obtained. A little rust does no harm and sulphur and phosphorus do not have to be kept to such low limits in the scrap, as both of these are greatly reduced in this process.

Both electric furnaces use punchings, clippings, bar ends, heavy turnings, etc. Light turnings sometimes give trouble. The use of scrap containing alloys depends on whether these would be objectionable in the castings.

The electric furnace is suited for melting gray iron borings, and other low-priced materials, from which high test gray iron can be produced by the addition of ferrosilicon and ferromanganese.

In certain parts of the country scrap is available in large quantities, but pig iron is costly. In such locations, scrap and borings can readily be used for the electric production of gray iron.

Desulphurization Is Necessary

The economic situation of Germany forced the use of large quantities of scrap in her furnaces, with the usual effect—that sulphur began to increase. A solution of this problem was effected by the well known work of Dr. Walter on alkaline slags.

Several years ago the alkaline processes were introduced in this country, and now are widely used. There seems to be some disagreement as to all the reactions, but in general, sodium carbonate is placed in contact with molten iron, the carbonate decomposing at this temperature. The sodium combines with the sulphur in the iron, forming sodium sulphide, which remains in the slag.

As a rule the fused form of sodium carbonate is used as it comes in small bricks, which are easy to handle. (The powdered form is sometimes used in closed containers.) Each brick weighs two pounds and the required number is thrown on each charge with the limerock, in the cupola. The main effect is to make a more fluid slag, which helps clean the scrap as it approaches the melting zone. Apparently the alkaline slag reacts with oxides in the charge, and at same time reduces the amount of sulphur absorbed by the iron.

Final desulphurization takes place after the iron has run from cupola, and has been separated from the cupola slag. For this final slag soda ash is used, either in a mixing ladle or in a forehearth. The slag usually absorbs from 10 to 50 per cent of the sulphur present, according to amount of soda ash used and time it is in contact with iron.

Sulphur Is Reduced

Results reported on malleable air furnace practice and on open hearth indicate a reduction of sulphur and possible absorption of included oxides.

As a check on structure of desulphurized, and untreated irons, two experimental heats were run using all scrap mixtures of practically identical composition. Results are given in Table V.

The former heat with great excess of soda ash showed 50 per cent reduction in sulphur, with probable reduction of silicon. Microphotographs of Fig. 4 show normal structure, unetched, and etched. There are less inclusions than might be expected with 100 per cent scrap mixture, so there is a strong probability that the alkaline slag removes inclusions to some extent, in the process of desulphurization.

As it is imperative to keep sulphur content of any mixture under control, some process of desulphurization must be used, if the mixture carries much high sulphur scrap. For this purpose, the soda ash process has advantages, as previously shown. Sulphur can be even more completely removed in the basic electric furnace process by absorption in slag. Some sulphur can also be removed by means of manganese.

To keep in step with improved quality, both the processes and the selection of materials must be under closer control. The scrap yard of the future probably will be equipped with briquette machines, balers, furnaces, magnetic separators, and even a chemical laboratory.

It is an individual problem for each foundry to decide what kind of scrap it can use—and how much of it.

Employes "on Time", with Competition Aroused

(*Concluded from Page* 1318)

are worthy of careful consideration:

1. When persons who are expected to report for work are absent, the planning of the activities of a department cannot be arranged so closely in advance of the day because no one can tell which employes will be on hand.

2. Absences may occur in such a manner as to destroy the balance in the force; they usually occur by groups.

3. Irregularity in attendance frequently breaks up the continuity of work. If a man is absent a few days after he has become accustomed to an operation, and another has to be instructed how to continue it, production experiences a serious setback.

4. There may occur absenteeism of such a nature that there is no one available to fill the places of the absentees. Then it becomes necessary to obtain men from outside the plant.

5. When the working force is regular in attendance it is not necessary to keep so many persons on the payroll; consequently it is possible to dismiss the least desirable and so increase the average quality of the employes retained.

6. Regularity in attendance is an important element of discipline. An employe who is regular and prompt in attendance generally will observe other regulations.

7. By regular attendance employes earn a larger income each week. Then they are much more contented.

Wage Meetings in May

Conference of the Amalgamated Association of Iron, Steel and Tin Workers with employers will be held at Atlantic City starting the last week of May. The first joint conference will be held May 28 with the sheet and tin plate division meeting first. The joint conference of bar iron workers and employers is scheduled for the following week.

The international celebration of the golden jubilee of light, marking the fiftieth anniversary of the invention of the incandescent light bulb by Thomas Edison—will be inaugurated in Atlantic City, N. J., May 31. In addition to opening the world-wide festival of light, the event will initiate a brilliant light display throughout the entire resort and approaching highways to last until Oct. 21, the anniversary date.

Distributors Operating on Efficient Basis

(*Concluded from Page* 1327)

tion. He explained, in particular, that his association is organized to work with the supply distributor and his salesmen to the limit. The association, among other activities, now is engaged in compiling data on all phases of mechanical power transmission, including shafting, belts, pulleys and other appliances, and that this data will be of particular value to distributors in promoting sales.

James A. Emery, general counsel, National Association of Manufacturers, addressed the American association on the subject of the tariff, declaring that the tariff should not be a football of politics but that it should be in the hands of a fact-finding commission which should fix the rates of duty in accordance with the welfare of industry.

M. Markham Flannery, chairman, trade practice conference division, federal trade commission, at a joint meeting of the three associations, delivered an interesting address on trade practice conference procedure. H. C. Dunn, department of commerce, Washington, talked on problems of distribution and their solution. An abstract of this paper will be presented in the May 16 issue of IRON TRADE REVIEW.

Don S. Briskin, Columbus McKinnon Chain Co., Tonawanda, N. Y., told of a new price plan now in effect on chain whereby the distributors are protected. There are three prices, on carload lots, less-than-carload quantities in standard packages, and less-than-standard packages. The prices are based on $6.25 per 100 pounds base, per standard package, whereas the price on broken packages is about 30 per cent higher.

Study Distribution

Distribution of twist drills offers one of the most unsatisfactory conditions in the industry, according to a good many speakers. Fifty per cent or more of the entire twist drill output is sold through mill supply houses on a margin of 5 to 9 per cent, whereas the cost to the mill supply houses was said to be around 20 per cent. Much was said about direct selling by some of the twist drill manufacturers and its influence in cutting the ground from under the distributors' feet. Instances were mentioned where certain twist drill manufacturers sell direct to large consumers at 30 and 11 per cent below the price to distributors.

William P. Jeffries, representing the Hack Saw Blade Manufacturers association said that this industry to a large extent had eliminated the practice of allowing secret rebates, and that it also had reduced substantially the number of blade sizes. The practice of post-dating invoices has been largely eliminated and direct selling is much less prevalent in this industry. "Where the manufacturer gives you a stable market at a fair price you are doing yourselves an injustice by trying to get special prices and thereby upset the market," said Mr. Jeffries. In the discussion on hack saws it was said that there are certain large buyers who insist on buying direct at low prices, and it was thought best for distributors to make no attempt to hold this trade.

Horace Armstrong, Armstrong Bros. Co., Chicago, discussed the marketing of drop-forged tools and said that conditions in this industry are the best since 1921.

A. C. Blaisdell, Queen City Supply Co., Cincinnati, chairman of the catalog committee of the National association, told of the work that had been done in compiling material for catalogs. This material is available to all members of the National association, enabling them to issue individual catalogs of high quality and at a minimum expense. Mr. Blaisdell was reaffirmed in this capacity.

A feature of the National meeting was the distribution by George A. Fernley, secretary-treasurer, of a 30-page report on the distribution of mill supplies. This report, the work of Robert L. Hobart, of the Wharton school of commerce and finance of the University of Pennsylvania, at the request of the officers and executive committee of the National association, represents a survey of practices and methods in the field of distribution which are responsible for the lack of adequate net prices to distributors.

The National association adopted a resolution which classed as unsound, and to be discouraged, the practice of manufacturers of soliciting business through their own representatives and turning it over to distributors to be filled, with the deduction of a 10 per cent commission. Another resolution placed the association on record as favoring uniform terms by manufacturers to distributors without respect to the section of the country in which they are located. The resolution favored the uniform use of the 2 per cent cash discount and also allowance of all freight to distributors.

George Puchta, Queen City Supply Co., Cincinnati, expressed strong approval of the organization and maintenance of local distributors' organizations. He cited various ways in which local organizations had improved the general condition of the distributors' business, and in which the members had been of service to each other.

H. H. Kuhn, Hardware & Supply Co., Akron, O., was elected president of the National Supply and Machinery Distributors' association to serve during the coming year. Other newly elected officers are: First vice president, H. E. Ruhf, Cleveland Tool & Supply Co., Cleveland; second vice president, E. B. Hunn, C. S. Mersick & Co., New Haven, Conn. New members of the executive committee are Percy G. Maddock, Maddock & Co., Philadelphia, A. E. Douglas, E. A. Kinsey Co., Cincinnati, and T. E. Hazell, W. H. Taylor & Co., Allentown, Pa.

New officers of the Southern Supply and Machinery Dealers' association for the ensuing year are: President, D. D. Peden, Peden Iron & Steel Co., Houston, Texas; first vice president, C. J. Saem, Dixie Mill Supply Co., New Orleans; second vice president, C. W. Beckner, W. Va.-Ky. Hardware & Supply Co., Huntington, W. Va. New members of the executive committee are: W. W. Doe, Alabama Machinery & Supply Co., Montgomery, Ala.; W. W. Taylor, Arkansas Mill Supply Co., Pine Bluff, Ark.; W. M. Given, Young & Vann Supply Co., Birmingham; T. C. Keeling, Nashville Machine & Supply Co., Nashville, Tenn.

New Officers Elected

David C. Jones, Lunkenheimer Co., Cincinnati, was elected president of the American Supply and Machinery Manufacturers' association for the coming year. Other new officers are: First vice president, W. C. Allen, Black & Decker Mfg. Co., Towson, Md. New members of the executive committee are: J. Harvey Williams, J. H. Williams & Co., Buffalo; William H. Fisher, T. B. Wood's Sons Co., Chambersburg, Pa.; H. F. Seymour, Columbian Vise & Mfg. Co., Cleveland; H. T. Ladds, Lake Erie Bolt & Nut Co., Cleveland; H. Z. Callender, Whitman & Barnes Inc., Detroit.

R. Kennedy Hanson, the newly appointed secretary of the American Supply and Machinery Manufacturers' association, already is well known by reason of his connection during the past two years as secretary of the National Pipe and Supplies association. Mr. Hanson will serve both these associations as secretary, with headquarters in Pittsburgh.

Editorials

Japan Setting New Steel Records

NEWS from Japan as published elsewhere in this issue of IRON TRADE REVIEW indicates iron and steel manufacturers in that country are rejoicing over record production and a return of fairly prosperous conditions. There is a striking similarity in this respect in the tone of recent reports from Europe and Asia, as well as those concerning our own industry.

The Japanese steel output constitutes less than 2 per cent of the world's total; the chief interest concerning it has been in regard to its effect on imports. Now it supplies 67 per cent of its own requirements of rolled steel, compared with 45 per cent in 1917. Its output of pig iron is sufficient for 63 per cent of its present requirements, against 67 per cent in 1917. The increase in tonnage, however, is not coming from Europe or the United States, as practically all of the pig iron it is importing is being shipped by blast furnaces in Korea, Manchuria and India. Its production of iron ore now is only 9 per cent of its requirements, compared with 39 per cent in 1917, but Korea and Manchuria, actually a part of the Japanese empire, are making up a large share of the difference.

Output of pig iron and ferroalloys in Japan, Korea and Manchuria has increased from 931,956 metric tons in 1925 to 1,507,764 tons in 1928. Steel ingot output in Japan proper, there being none in either Korea or Manchuria, advanced from 1,300,203 tons to 1,968,000 tons in the same period, the 1928 figure being a record for all time. Rolled steel production also has broken all former marks, expanding from 938,385 tons in 1925 to 1,594,140 tons in 1928.

The gains are ascribed mainly to the granting of government subsidies, in effect since 1926. In the post-war inflation period 209 iron and steel companies existed in Japan; now there are 27, and some are resuming dividends. Japan promises to be a market for finished rather than raw steel.

3800 Miles of Automobiles

EACH minute of the 102 eight-hour working days in the first four months of this year 44.5 automobiles and trucks were produced in the United States and in American-owned plants in Canada. This rolls up a total of 2,178,957 units, according to the national automobile chamber of commerce. Allowing 110 inches as the average wheelbase, these vehicles end to end would cover a distance of 3782.92 miles, a little more than one-tenth the distance around the earth at the equator.

This establishes a new high record for a 4-month output and goes far toward explaining the huge demand for steel from automotive sources during that period. April output of autos and trucks in the United States and Canada is estimated at 633,424, or 8052 units above March, the largest month on record.

Unless present plans for May fail of materialization, an even higher total will be produced, thus sustaining steel demand at least for another month. The usual letdown in June and July already is reflected in curtailed steel specifications for these months, but the decline is expected to be less precipitate and to be of shorter duration than usual. Chevrolet, which made 157,137 in April, schedules 160,000 for May; Ford plans to equal if not exceed the 190,388 made in April; Hudson-Essex, which made 44,447 in April, is counting on 45,000 for May, having 1900 units as a daily schedule; Oakland-Pontiac, which had a combined total for April of 36,385, plans to build at least 37,500; and Willys-Overland with 40,248 plans in May to equal April.

With 2,178,957 units already produced, and May showing possibilities of crossing the 600,000-mark, a record production year seems assured. This feat, of course, is contingent on a last half year not depressed by the unprecedented gait of the first half.

Business Activity Maintained

GENERAL business continues to move along at a merry clip with few, if any, signs of the slowing down which numerous forecasters insist is already some weeks overdue. Even in the building construction industry, where there has been decline in recent months seemingly in response to high money rates, an impressive forward spurt came in April. In fact the total of contract awards reported by the F. W. Dodge Corp. for 37 states was the highest of any month since June, 1928.

Most puzzling of all are the activities of the iron and steel and the automobile industries.

Here production remains at a pitch wholly without precedent. During the first four months of 1929 fully 2,179,000 cars and trucks were turned out by motor car plants in the United States and Canada. The rate of output in April actually reached the fabulous rate of 7,500,000 cars and trucks annually. Never before has the iron and steel industry continued to operate at so great a rate nor for so long a time as now.

What is in store over the immediate future? Seasonal considerations together with the conclusions arising from the logic of such tremendous volumes would seem to point to curtailment. The wonder is that the forces of readjustment have not appeared before this. But in addition to these probable seasonal forces, making for some recession from current peaks of activity, is the element of credit. Unmistakably money rates are at the highest point since 1920 and 1921, and such high money rates accompanied by efforts of financial authorities to check further inflation of credit, usually have a dampening effect upon business.

This has not happened so far, and therein lies the cause of most of the mystification in which business forecasters find themselves. The facts are that industry probably is less directly dependent upon credit conditions than ever. Profits have been good in many lines and cash balances show striking gains for numerous companies, with the result that little bank borrowing is necessary. Capital, in the majority of cases, has been raised by the sale of stock through the stock market. Of even greater importance, there has been no inflation of commodity prices. Even iron and steel prices, now the highest in over two years, show an advance of only about 4 per cent over their low point of last year. Consequently, basic factors do not point to severe industrial contraction, although some seasonal slackening is not improbable.

Reducing Costs in Small Plants

PROBLEMS of reducing manufacturing costs in small and moderate size industrial plants, where the expense of a cost reduction department hardly is justified, have been the subject of much consideration in recent years. It is recognized that the essential results of a cost reduction department can be obtained by other tried and practicable methods.

Distinctive features of the so-called plant committee plan have been found applicable to smaller companies, but the objective of cost reduction committees, it has been found, should be one of mutual interest. Such a committee should be fundamentally a clearing house on economies of plant operation and not a board of criticism.

The industrial relations committee of the National Metal Trades association in a recent report to the members of that body discussed thoroughly the significant features of a committee plan of cost reduction for moderate size plants, pointing out that suggested economies by a plant cost reduction committee of three or more men should be the capitalization of different perspectives mutually helping toward a common goal. Smaller industrial works, faced with the necessity of scientific cost reduction, are tending to use the best means they have at hand to attack on all fronts the waste that thwarts their progress.

Basic Iron and Scrap Diverge

PRICES of basic pig iron and heavy melting steel have followed divergent paths since the beginning of the year. Whereas in January the steelmaking scrap grade sold between $19.50 and $20, recent sales have been made at $18 to $18.50. In the meantime, basic iron which held at $17.50, valley, during the first month of the year has climbed $1 to a peak of $18.50. A premium of $1.50 in scrap over pig iron has been reduced to a parity and in some cases to a discount of 50 cents.

Some value as a barometer of the trend of steel production is ascribed to scrap and pig iron prices although accompanying factors may emphasize or mitigate the extent of the future change in operations. For example, the February average of heavy melting steel showed a decline from the January level and March witnessed a further slump, but steel production has advanced rather than receded since the first two months of the year. It would appear, however, that scrap prices were driven abnormally high in January by the fact that production of old material was not sufficiently advanced to meet the heavy demand. Since that time scrap producing industries have increased operations and the price of heavy melting steel has settled accordingly, though there have been no indications of a sharp break.

Pig iron prices have profited by the sustained demand of steelworks for a large share of their blast furnace output. Some interests profess to be sold up for the remainder of the quarter, leaving the bulk of what additional iron may be required outside of contracts over the next six weeks to be supplied by merchant furnaces. The market presents a firm tone. Current backlogs of a number of finished steel products precludes an immediate precipitate decline in steelmaking operations; the tone of pig iron and scrap have yet to indicate a similar one before the end of the quarter.

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Million Automobiles Scrapped Annually. Some Facts About the Use of Scrap in Mixtures. Page 1319.

RESULTS of a series of experiments on use of iron and steel scrap in foundry mixtures form the basis of one of the many interesting articles in this issue, beginning on page 1319. Ferrous scrap produced in this country amounts to about 20,000,000 tons annually, and as the author points out it "saves nearly 40,000,000 tons of our diminishing iron ore reserves." About 1,000,000 automobiles are scrapped annually, averaging about one ton of metal in each, which would be available for castings if it could be obtained in suitable form. The volume of scrap is steadily increasing.

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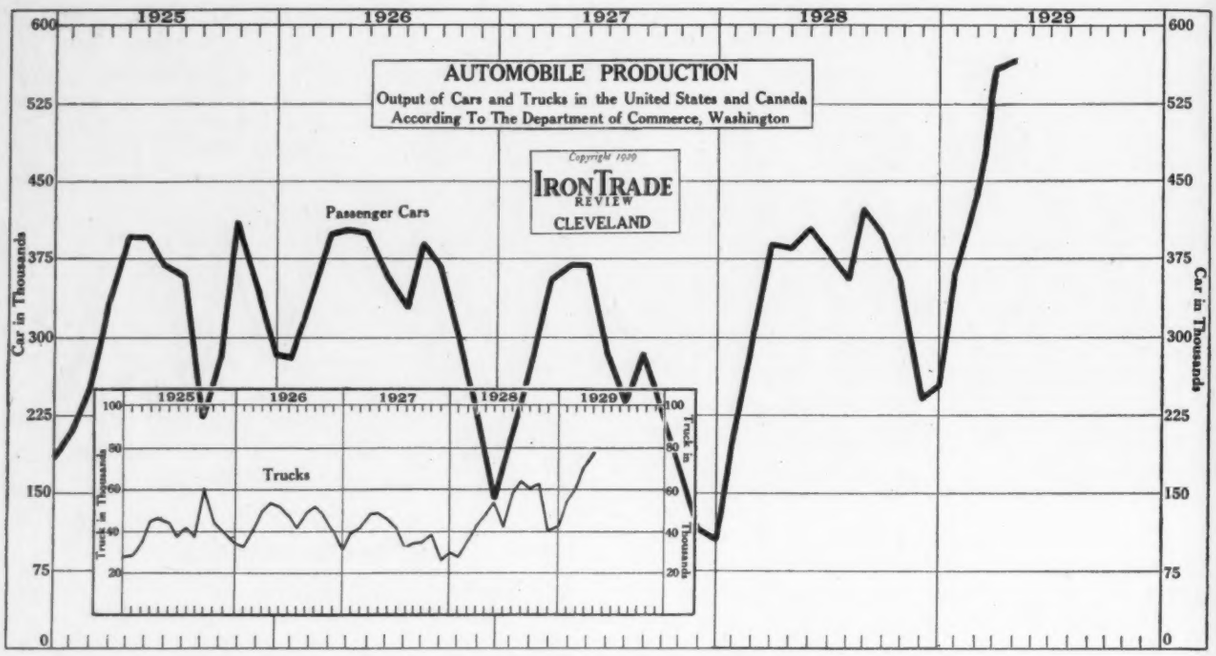
The Business Trend



Motor Car Output at Record

By JOHN W. HILL, Financial Editor

THE production of automobiles in the United States in April established a new high record for all time. It was at the annual rate of 7,500,000 passenger cars and trucks. The estimated output for the month was 633,400 units, an increase of 8000 units over the previous record of March. During the first four months of the year the industry has turned out 2,178,957 cars and trucks.

AT THE start of the year it was predicted that production in 1929 would be unprecedented. Some went so far as to forecast a production of 6,000,000 cars and trucks, but more conservative estimates were for 5,000,000. It was believed by careful observers that fully 3,000,000 units would be manufactured in the first half of the year. It would now seem that this objective will be easily attained.

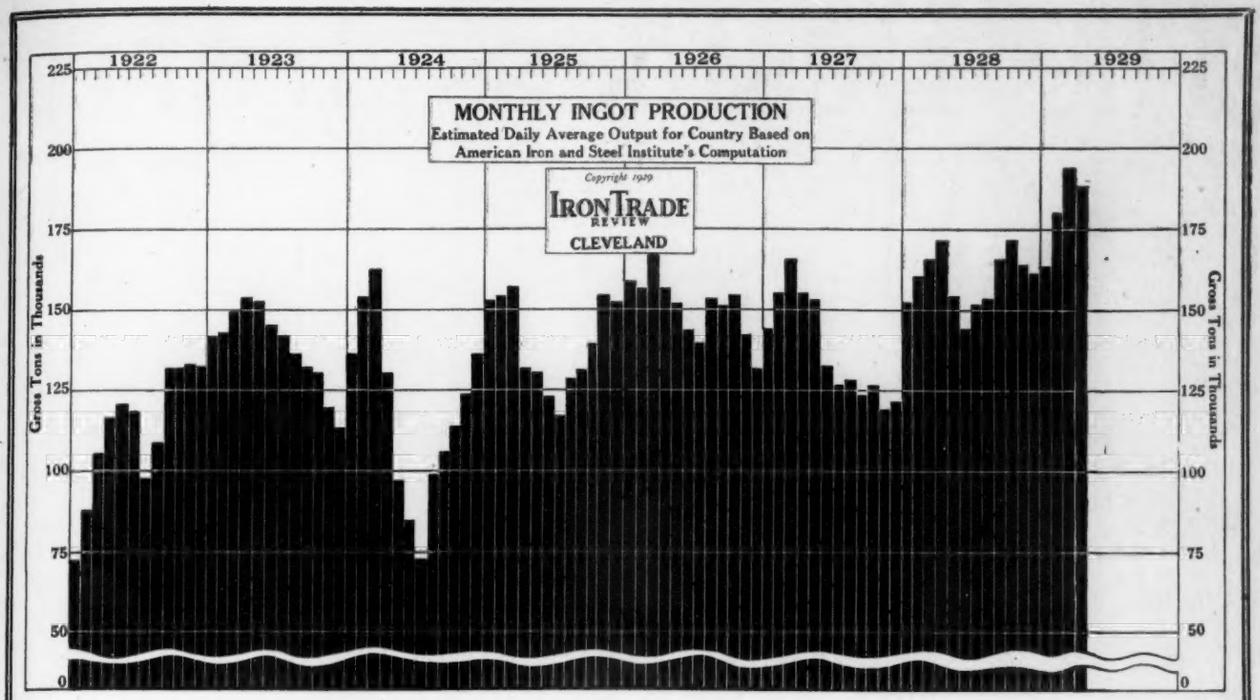
THE feeling has prevailed for some time that some important curtailment of motor car output is near at hand. In fact, the new high record in April came as a surprise as it was believed that March marked the peak. But apparently new sources of demand are being tapped by the industry.

IN FACT reports from the industry indicate that the current month will bring further large volume production records. Fears have been expressed lest the industry pile up overproduction. This is not likely, however, in view of manufacturers' past experiences and their present policy of holding outputs in line with consumptive demand. Ford production alone in April was 190,000 units, or 30 per cent of the total.

NOT only is domestic demand large, but foreign demand has expanded greatly this year also. March set a new record for motor car exports, with a value of $78,324,879, shipments for the first quarter of the year totaled $187,448,282, an increase of $68,900,000 over 1928.

AMERICAN cars and trucks are going to all parts of the world. Canada is a large buyer. In the truck field Argentina was replaced by Australia as an outstanding market. Japan is a market of growing importance. Of the 73,843 cars in Japan 68,954 are of American manufacture. Of the remaining 4889 about 1500 are made in Japan and 3389 come from Europe. Of all cars imported by Japan in 1928 fully 97.7 per cent came from the United States.

The Business Trend

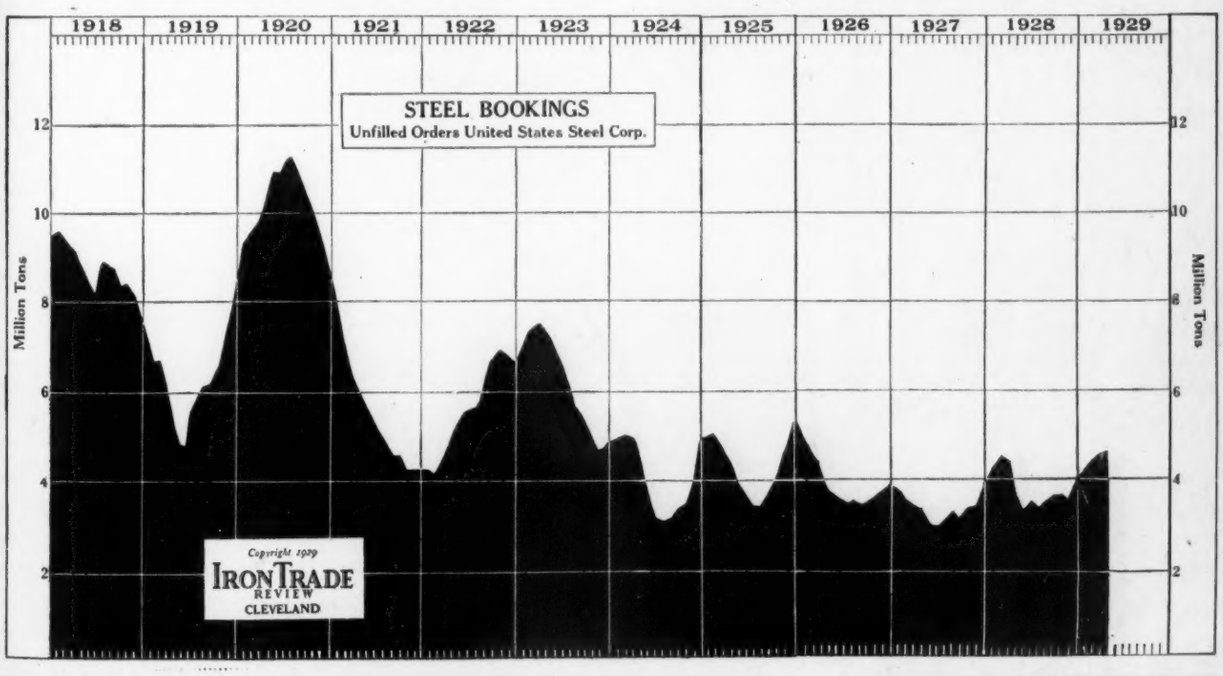


Steel Ingots

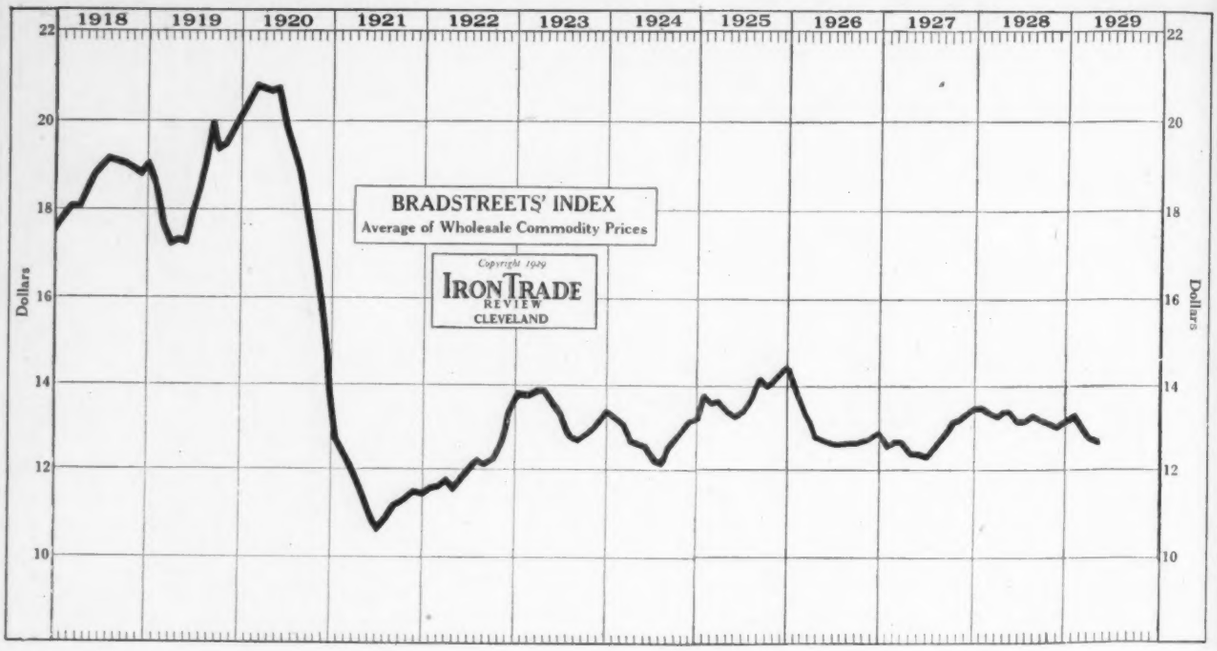
WITH a daily average output of 189,924 tons, April's record of steel ingot production was the second largest in the history of the iron and steel industry. The decline from the daily average of 194,548 tons in March was only 2.4 per cent. Operations in April averaged 96.84 per cent of capacity based on the American Iron and Steel institute revised capacity rating, compared with 99.2 per cent in March. The present estimated rate of output is 60,990,810 gross tons of bessemer and open hearth ingots.

Steel Bookings

UNFILLED orders of the United States Steel Corp. showed an increase of 17,045 tons in April. The total volume of bookings at the end of the month was 4,427,763 tons. This was the highest of any time since February, 1926. The April increase was the fifth successive monthly gain in unfilled tonnage. It compared with a gain of 266,377 tons in March and a decline of 463,073 tons in April, 1928. The current bookings of the Corporation are sufficient to keep plants active for some months to come.



The Business Trend

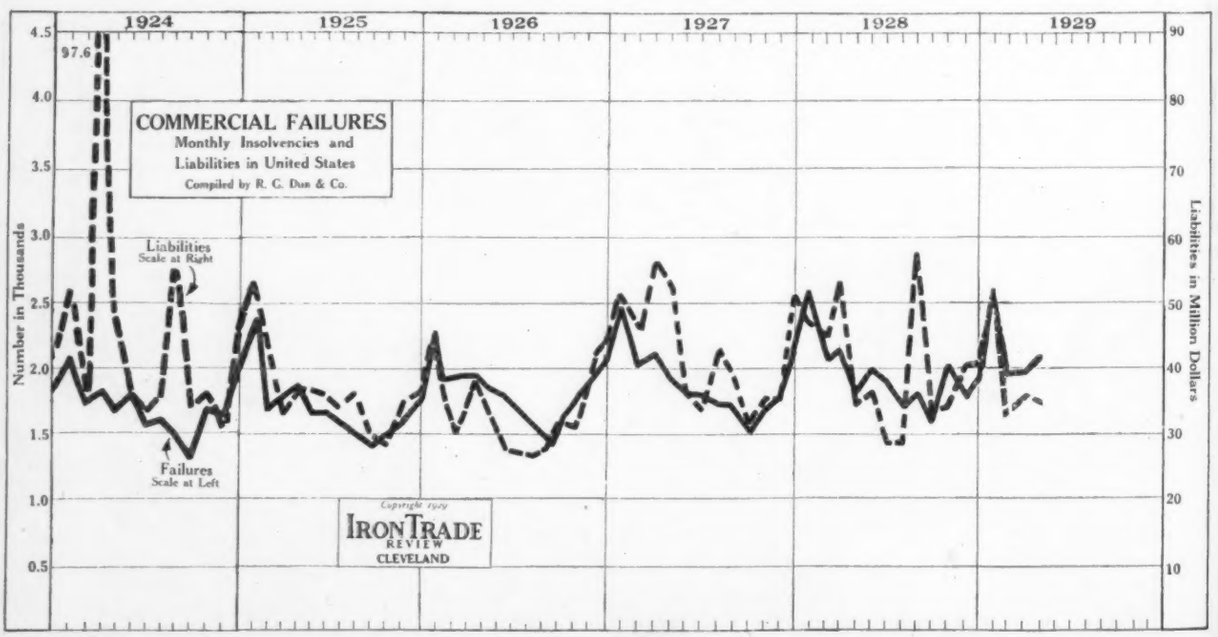


Bradstreet's

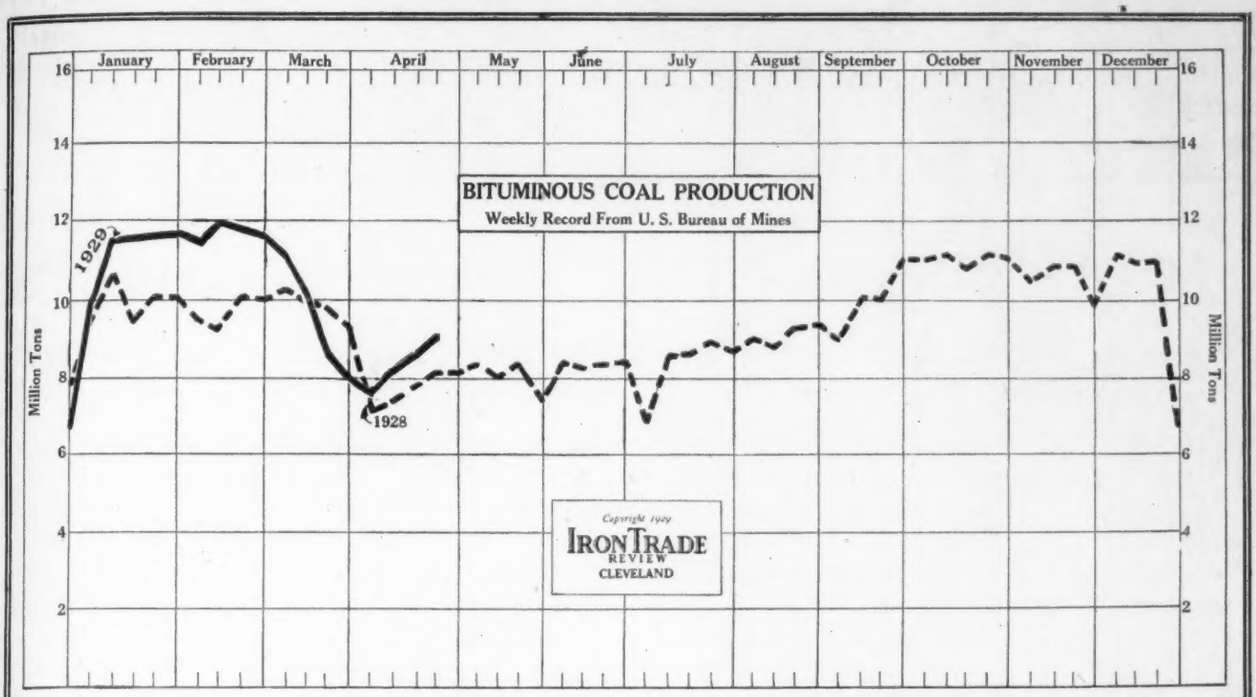
APRIL brought some recession in commodity price averages as compiled by Bradstreet's. The chief cause of the decline is found in the recent collapse of copper prices and some weakness in rubber and in raw textiles, particularly cotton and wool. On May 1 Bradstreet's index showed a decrease of 1.5 per cent from one month before and of 2.2 per cent from Jan. 1. Compared with one year ago a decline of 5.6 per cent is shown. The lack of commodity price inflation is a strong market point.

Business Failures

THE number of commercial defaults in the United States in April was 2021, with liabilities of $35,269,702. This compared with failures of 1927 in March and liabilities of $36,355,691. In April, 1928, the number of failures was 1818 and liabilities were $37,985,145. Compared with one year ago an increase in the number of failures of 11 per cent is shown, with a reduction of 10 per cent in the total liabilities involved. On the whole the record appears to be favorable.



The Business Trend

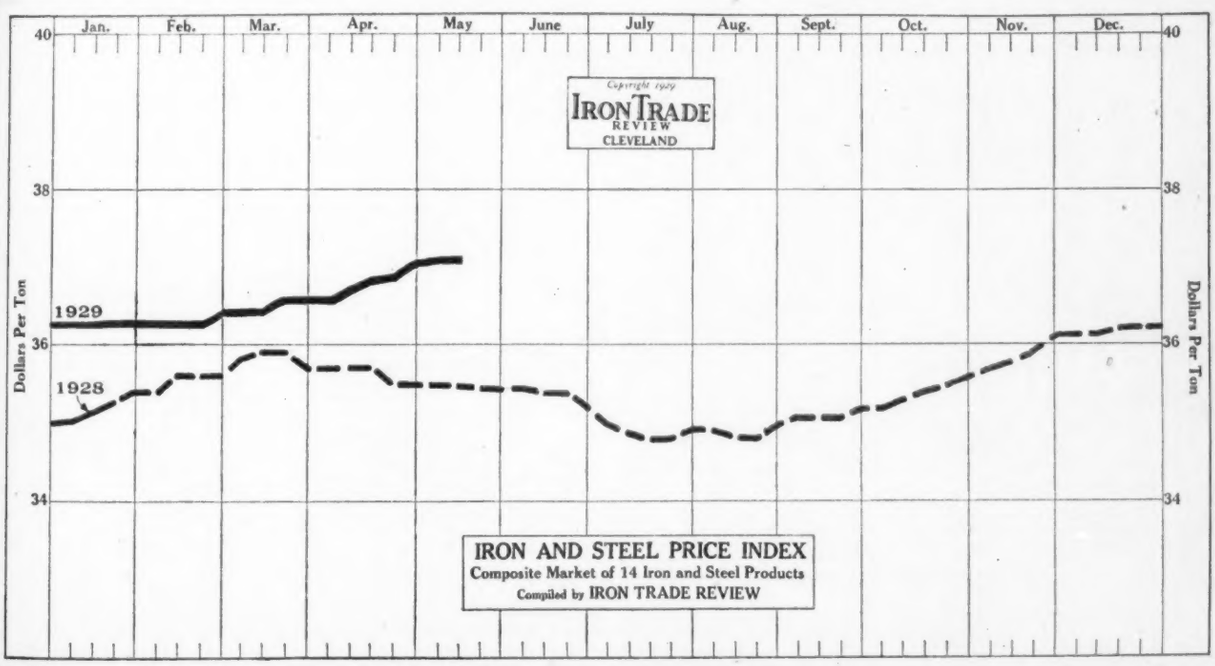


Coal Production

SOME upward turn in the production of soft coal was indicated for the last half of April. The output for the week ended April 27 was 9,117,000 tons. This compared with 8,651,000 tons for the preceding week and 8,247,000 in the week ended April 13. The daily average rate of output for the week ended April 27 was 1,520,000, compared with 1,442,000 tons for the previous week. The month as a whole showed a decline in production, with a total of 36,871,000 tons compared with 39,347,000 tons in March.

Steel Price Index

IRON and steel prices continue firm with advances reported for some products. Large volume sales of basic iron have been made at $18.50, valley, a price 50 cents higher than the previous level. The apparent scarcity of semifinished steel has resulted in an increase of $1 a ton for sheet bars, billets and slabs. Sheets also are firmer. As a result of these evidences of strength IRON TRADE REVIEW'S composite market average of 14 leading products stands at the highest point in 28 months.



Steel Needs Still Tax Producers

Shipments Are Seasonally Heavy—Valley Iron Prices Up—Ore Shipments Are Double Year Ago—Blue Annealed Sheets on Dual Price Base

PRESSURE for prompt delivery of finished steel is substantially as insistent as at what apparently was the peak of the spring consuming bulge 30 to 45 days ago. Incoming business in most products, however, continues to fall slightly short of shipments, but the shrinkage is milder than might have been expected with the industry well into its fifth consecutive record month of production and consumption.

Strength Marks Price Situation

Third quarter business has not been large but increasingly it commands attention, for one reason because mill capacity for some important products is engaged through this quarter. Usually when consumers seek a place on mill books for the next quarter the price is left open. For seasonal reasons the third is not usually a propitious quarter for advancing prices, but the strong situation in pig iron and semifinished steel may point the way.

Ingot production in April, while 2.4 per cent off the alltime record of March, nevertheless surpassed all previous April efforts. With operating rates in the Pittsburgh and Chicago districts at practical capacity and Youngstown district mills this week turning out the greatest tonnage since October, there is an outside chance of May setting a new top. The increase in unfilled tonnage of the Steel corporation, while slight, is a factor for strength.

Steel corporation subsidiaries this week still are operating in excess of practical capacity. With independents averaging 94 per cent, the entire industry approximates 97½ per cent. In the Mahoning valley 30 out of 34 blast furnaces are active, and 50 out of 51 independent open hearths are operating. Pittsburgh, Buffalo and Chicago are at virtual capacity.

Free Blue Annealed From Strip Competition

Blue annealed sheet prices should be stabilized by the dual method of quoting which important makers are adopting. To localize the competition of strip steel and light plates, blue annealed sheets No. 12 gage and heavier will be designated as light plates, blue annealed, and quoted on a No. 9 and 10 gage base. For blue annealed sheets

Comparative Prices of Iron, Steel and Coke

Representative Market Figures for This Week, Last Month, Three Months and One Year Ago

	May 15, 1929	April 1929	Feb. 1929	May 1928
PIG IRON				
Bessemer, del. Pittsburgh	$20.76	20.26	19.86	19.26
Basic, valley	18.50	18.00	17.50	16.20
Basic, eastern, del. eastern Pa.	20.65	20.25	20.50	19.10
No. 2 foundry, del. Pittsburgh	20.26	19.86	19.26	18.86
No. 2 foundry, Chicago	20.00	20.00	20.00	18.20
*Southern No. 2, Birmingham	15.50	15.50	16.50	16.00
**No. 2X, Virginia furnace	20.75	20.75	21.25	20.50
**No. 2X, eastern del. Phila.	22.76	22.26	22.01	21.26
Malleable, valley	19.00	18.50	18.00	17.25
Malleable, Chicago	20.00	20.00	20.00	18.20
Lake Superior charcoal, del. Chicago	27.04	27.04	27.04	27.04
Gray forge, val., del. Pittsburgh	19.26	19.26	18.76	18.76
Ferromanganese, del. Pittsburgh	109.79	109.79	109.79	109.79
*1.75 to 2.25 silicon. **2.25 to 2.75 silicon.				
COKE				
Connellsville furnace, ovens	2.75	2.75	2.90	2.55
Connellsville, foundry, ovens	3.75	3.75	3.75	3.55
SEMIFINISHED MATERIAL				
Sheet bars, open-hearth, Youngstown	36.00	35.00	34.25	33.10
Sheet bars, open-hearth, Pittsburgh	36.00	35.25	34.25	33.50
Billets, open-hearth, Pittsburgh	36.00	34.50	33.25	32.50
Wire rods, Pittsburgh	42.00	42.00	42.00	44.00

	May 15, 1929	April 1929	Feb. 1929	May 1928
FINISHED MATERIAL				
Steel bars, Pittsburgh	1.95	1.95	1.90	1.85
Steel bars, Chicago	2.05	2.05	2.00	2.00
Steel bars, Philadelphia	2.27	2.27	2.27	2.17
Iron bars, Chicago	2.05	2.05	2.05	2.00
Shapes, Pittsburgh	1.95	1.95	1.90	1.85
Shapes, Philadelphia	2.00	2.06	2.01	2.08
Shapes, Chicago	2.05	2.05	2.00	2.00
Tank plates, Pittsburgh	1.95	1.95	1.90	1.85
Tank plates, Philadelphia	2.15	2.15	2.10	2.05
Tank plates, Chicago	2.05	2.05	2.00	2.00
Sheets, black, No. 24, Pittsburgh	2.95	2.90	2.85	2.75
Sheets, blue anl., No. 10, Pittsburgh	2.20	2.15	2.10	2.00
Sheets, gal., No. 24, Pittsburgh	3.70	3.65	3.60	3.65
Sheets, black, No. 24, Chicago	3.10	3.10	3.00	2.85
Sheets, blue anl., No. 10, Chicago	2.35	2.35	2.25	2.20
Sheets, galvanized, No. 24, Chicago	3.85	3.85	3.75	3.80
*Plain wire, Pittsburgh	2.50	2.50	2.50	2.50
*Wire nails, Pittsburgh	2.65	2.65	2.65	2.60
Tin plate, per base box, Pittsburgh	5.35	5.35	5.35	5.25
*To large jobbers.				
SCRAP				
Heavy melting steel, Pittsburgh	17.75	18.50	18.60	15.00
Heavy melting steel, eastern Pa.	16.50	17.00	16.30	13.75
Heavy melting steel, Chicago	15.50	17.00	16.25	12.95
No. 1 wrought, eastern Pa.	16.25	16.25	16.25	15.25
No. 1 wrought, Chicago	16.50	16.65	15.75	13.05
Rails for rolling, Chicago	17.50	17.50	17.50	14.35

Current Prices for Rolled Steel Products

PRICES IN CENTS PER POUND

STEEL PLATES

Pittsburgh, base	1.95c
Philadelphia, del.	2.15c to 2.25c
New York, del.	2.225c to 2.325c
Boston, del.	2.265c to 2.415c
Chicago, base	2.05c to 2.15c
Cleveland, delivered	2.14c
Lackawanna, N. Y., base	2.05c to 2.15c
Birmingham, base	2.10c to 2.20c
Coatesville, Pa., base	2.00c to 2.10c
Pacific Coast, c.i.f.	2.35c
St. Louis, del.	2.27c
Detroit, del.	2.19c to 2.24c

STRUCTURAL SHAPES

Pittsburgh, base	1.95c
Philadelphia, base	2.00c to 2.11c
New York, del.	2.195c to 2.245c
Boston, del.	2.265c to 2.415c
Chicago, base	2.05c to 2.15c
Cleveland, delivered	2.14c
Lackawanna, N. Y.	2.05c to 2.15c
Birmingham, base	2.10c to 2.20c
Bethlehem, Pa., base	2.00c to 2.10c
Pacific Coast, c.i.f.	2.35c
Detroit, del.	2.19c to 2.24c

BARS

SOFT STEEL

Pittsburgh, base	1.95c
Chicago, base	2.05c to 2.15c
Birmingham, base	2.10c to 2.20c
Lackawanna, N. Y., base	2.05c to 2.15c
Pacific Coast, c.i.f.	2.35c
Cleveland, base, local mills	1.95c
Cleveland, del., outside mills	1.95c to 2.00c
Philadelphia, del.	2.27c to 2.37c
New York, delivered	2.29c to 2.39c
Boston, delivered	2.265c to 2.415c
Detroit, del.	2.19c to 2.24c
Pittsburgh, cold finishing	2.05c
Pittsburgh, forging quality	2.15c

RAIL STEEL

Chicago Heights	1.95c
Eastern mills	1.85c to 1.95c

IRON

Chicago, base	2.05c to 2.15c
New York, delivered	2.14c to 2.24c
Philadelphia, delivered	2.12c to 2.22c
Pittsburgh, refined	2.75c to 4.25c

REINFORCING

Pittsburgh, billet, cut lengths	2.30c
Stock lengths from mill	2.00c
Chicago, billet	2.40c to 2.90c
Chicago, rail steel	2.00c to 2.05c
Chicago, rail steel, road and bridge work	1.95c to 2.05c
Philadelphia, cut lengths	2.57c to 2.62c

SHEETS

SHEET MILL BLACK

No. 24, Pittsburgh, base	2.85c to 2.95c
No. 24, Philadelphia, delivered	3.17c to 3.27c
No. 24, Gary, Indiana Harbor	3.05c
No. 24, Chicago, delivered	3.10c
No. 24, Birmingham, base	3.10c
No. 24, St. Louis, del.	3.27c
No. 24, Pacif. coast ports, c.i.f.	3.50c

TIN MILL BLACK

No. 28, Pittsburgh, base	3.00c
No. 28, Gary, base	3.10c

GALVANIZED

No. 24, Pittsburgh, base	3.60c to 3.70c
No. 24, Philadelphia, delivered	3.92c to 4.02c
No. 24, Gary, Indiana Harbor	3.80c
No. 24, Chicago, delivered	3.85c
No. 24, Birmingham, base	3.85c
No. 24, St. Louis, del.	4.02c
No. 24, Pacif. coast ports, c.i.f.	4.25c

BLUE ANNEALED

No. 10, Pittsburgh, base	2.10c to 2.20c
No. 10, Philadelphia, delivered	2.42c to 2.52c
No. 10, Gary, Indiana Harbor	2.30c
No. 10, Chicago, delivered	2.35c
No. 10, Birmingham, base	2.35c
No. 10, St. Louis, del.	2.52c
No. 10, Pacif. coast ports, c.i.f.	2.725c

AUTOMOBILE

No. 20, Pittsburgh, base	4.10c
No. 20, Detroit, delivered	4.39c

FURNITURE

Pittsburgh	4.20c

(*Turn to the following page*)

proper, No. 13 will be the base grade. On some gages there will be an advance of $1 to $2 per ton. Autobody sheet prices are slated to be advanced $2 per ton for the third quarter by some makers. Deliveries on most sheet grades are only slightly easier.

Final statistics on freight car orders in April give the month 8205, making the four-month total 49,328. In the first four months of 1928 only 23,381 cars were placed, and in the entire year 44,763. Seven thousand freight and 240 passenger cars are actively pending. The week's orders include 1000 box cars by the Pennsylvania and 100 stock cars by the Northern Pacific, in each case to the road's own shops. Twenty-seven locomotives were placed.

Bar Deliveries Are Slowly Easing

At Chicago and Pittsburgh bar mills are improving on their deliveries, but on some sizes at Chicago 14 weeks is the best possible. Bar demand in the East is sustained. Oil country requirements lead in new business at Chicago, where 5000 tons for tanks was placed in the week and inquiry expanded to 15,000 to 20,000 tons. A pipeline at Newark, N. J., will take 8000 tons of plates. Structural steel jobs are seasonally high, with 50,000 tons in prospect for a Chicago tower. Continued improvement is noted in demand for wire products for agricultural uses. Strip steel deliveries still are extended despite capacity production, narrow hot strip being the most wanted classification.

Pig iron melters show more interest in third quarter requirements but buying for that delivery is not active. Basic iron in the Mahoning valley seems established at $18.50 with further sales at the 50-cent advance. Bessemer and malleable iron prices there also have advanced 50 cents. Two stacks at Birmingham are to be dropped shortly.

Foreign Ore High and Scarce

Reflecting unprecedented consumption, Lake Superior iron ore is moving to the furnaces at the rate of 9,000,000 tons for May, compared with 5,300,000 tons last May. The movement to June 1 promises to be double that for the comparable period of 1928. Foreign iron ore prices are high and some grades are not obtainable at any price, a condition which may prompt the reopening of some eastern mines.

Steel ingot production in April, at 189,924 gross tons daily, was second only to the 194,548-ton rate of March and exceeded the previous April record—the 172,215 tons of a year ago—by a wide margin. In the first four months 18,812,637 gross tons of ingots were produced, compared with 16,846,958 tons a year ago. Steelmaking operations in April averaged 96 per cent, and for the first four month of this year 93 per cent.

Composite Market Average

Based on Pig Iron, Billets, Slabs, Sheet Bars, Wire Rods, Steel Bars, Plates, Structural Shapes, Black, Galvanized and Blue Annealed Sheets, Tin Plate, Wire Nails and Black Pipe

This week (May 15, 1929)	**$37.13**
Last week (May 8, 1929)	**37.07**
One month ago (April, 1929)	**36.81**
Three months ago (February, 1929)	**36.28**
One year ago (May, 1928)	**35.54**
Ten years ago (May, 1919)	**48.29**
Fifteen years ago (May, 1914)	**22.99**

Rising pig iron prices in the Mahoning valley have put the IRON TRADE REVIEW composite of fourteen leading iron and steel products up 6 cents, to $37.13, the highest point this index has reached since early 1927.

Current Rolled Steel Prices

PRICES IN CENTS PER POUND UNLESS OTHERWISE INDICATED

Tubular Products Quoted On Last Editorial Page—See Preceding Page For Other Products

HOOPS, BANDS, STRIPS

Hot strip, to 6-in., Pitts.	2.00c
Hot strip 6¼ to 24-in., Pitts.	1.90c
Hot rolled strip, 12 to 24-inch 16 gage and heavier, coils or cut length, 1.90c plate basis, or 2.10c blue annealed basis.	
Hot strip, bands 6 in. and under, Chicago	2.10c to 2.30c
Do, 6¼ to 24 in.	2.00c to 2.10c
Cooperage stock, Pittsburgh	2.20c
Do, Chicago	2.30c
Cold rolled strip, hard coils, 16 inches and under by 0.100-inch and heavier, base Pitts., Cleve. (3 ton and over)	2.75c to 2.85c
Worcester, Mass. (3 tons and over)	3.10c to 3.20c

ALLOY STEEL

Hot Rolled

F.o.b. Mills

Alloy Quality Bar Base is 2.65c

S.A.E. Series Number	Alloy differential	Net 100 lb. bars
2000	0.25	$2.90
2100	0.55	3.20
2300	1.50	4.15
2500	2.25	4.90
3100	0.55	3.20
3200	1.35	4.00
3300	3.80	6.45
3400	3.20	5.85
4100 0.15-0.25 Mo.	0.50	3.15
4100 0.25-0.40 Mo.	0.70	3.35
4600 0.20-0.30 Mo. 1.25-1.75 Ni.	1.05	3.70
5100 0.60-0.90 Cr.	0.35	3.00
5100 0.80-1.10 Cr.	0.45	3.10
5100 Chrome Spring	0.20	2.85
6100 Bars	1.20	3.85
6100 Spring Steel	0.95	3.60
Chrome Nickel Vanadium	1.50	4.15
Carbon Vanadium	0.95	3.60
9250 (flats)	0.25	2.90
9250 (rounds squares)	0.50	3.15

COLD FINISHED STEEL

Cold finished steel bars drawn or rolled, Pitts., Chi., c.l.	2.30c
Do, del. Detroit	2.575c
Shafting (turned, polished) Pittsburgh	2.30c
Shafting (turned, ground) mill (Depending on size, 1 3/16 to 7-inch)	2.65c to 3.10c
Cold finished steel bars, Cleve.	2.25c to 2.35c

WIRE PRODUCTS

F.o.b. Pittsburgh, Cleveland, Ironton base

(Per Pound)	Dealer trade	Large jobbers
Bright plain wire, 6 to 9 gage	2.60c	2.50c
Annealed field wire	2.75c	2.65c
Galvanized wire	3.20c	3.10c
Barbed wire, galvanized	3.40c	3.30c
(Per 100-pound keg)		
Wire nails	$2.75	$2.65
Galvanized nails	4.75	4.65
Polished staples	3.20	3.10
Galvanized staples	3.45	3.35
Cement coated nails	2.75	2.65
Manuf. wire, del. Detroit		2.735c
Wire nails, del. Detroit		$2.885

Joliet, DeKalb and Waukegan, Ill., Anderson, Ind., and Chicago prices $1 per ton over Pittsburgh-Cleveland-Ironton base on products made there; Duluth $2 higher; Worcester, Mass., Fairfield, Ala., $3 higher.

Woven wire fencing, retailers, Pittsburgh-Cleveland, net ton $65.

Anderson, Ind., $1 higher, Chicago $2 higher, Duluth, Birmingham $3 higher.

CUT NAILS, CHAIN PILING

Cut nails, c.l., f.o.b. mills	2.70c to 2.75c
Cut nails, l.c.l. f.o.b. mills	2.80c to 2.85c
Chain, 1-in., proof coil, Pitts.	6.00c
Sheet piling, base, Pittsburgh	2.25c

CAST IRON WATER PIPE

Prices per net ton

Class B pipe

Six-inch and over, Birming'm	$37.00 to 38.00
Four-inch, Birmingham	41.00 to 42.00
Four-inch, Chicago	49.20 to 50.20
Six-inch to 24-inch, Chicago	45.20 to 46.20
Six-inch and over, New York	38.06 to 40.00
Four-inch, New York	41.00 to 42.00
Standard fittings, Bir. base	$100.00

Six to 24-inch, base; over 24-inch, plus $20; 4-inch, plus $10; 3-inch, plus $20; gas pipe fittings, $5 higher.

Class A pipe is $4 higher than Class B.

TIN AND TERNE PLATE

Prices per 100-pound box Pittsburgh

*Tin plate, coke base	$5.35

Gary, Ind., base 10 cents higher.

Long ternes, primes, No. 24.. 4.00c to 4.10c

*Price subject to quantity differentials.

WASHERS

Wrought, c.l., Pitts. dist.	$6.50 to 6.75 off
Wrought, c.l., Chicago dist.	$6.70 to 6.90 off
Lock: to dealers	85-5 off
Lock: to consumers	85 off

RAILS, TRACK MATERIAL

Standard bessemer rails, mill	$43.00
Standard open-h'th rails, mill	$43.00
Relay rails, Pitts., 60 to 90 lb.	$24.00 to 29.00
Light rails, 25 to 45, mill	$36.00
Angle bars, Chicago base	2.75c
Spikes, railroad, Pittsburgh	2.80c
Spikes, small railroad, 7/16-inch and smaller, Pitts	2.80c
Spikes, boat and barge, Pitts.	3.00c
Spikes, railroad, Chicago	2.80c
Track bolts, Pitts., steam roads	3.80c
Track bolts, Pitts., stand, jobbers	70 off list
Track bolts, Chicago	3.80c
Tie plates, Chicago, Pitts.	$43.00

BOLTS AND NUTS

Birmingham and Chicago

Discounts are for legitimate jobbing or large consuming trade purchasing in full-case lots, apply to lists of April 1, 1927.

Small lots are 55 to 60 per cent off.

CARRIAGE BOLTS

All sizes, cut thread	60 to 70 off

Rolled thread ⅝ x 6 and smaller take 10 per cent lower list.

Eagle list	60 to 70 off

MACHINE BOLTS

All sizes, cut thread	60 to 70 off

Rolled thread ⅝ x 6 and smaller take 10 per cent lower list.

Lag screws	60 to 70 off
Plow bolts, Nos. 1-2-3-7 heads	60 to 70 off
Tap bolts	60 to 70 off
Blank bolts	60 to 70 off
Stud bolts without nuts	60 to 70 off
Stove bolts, 75, 20, 10 and 5 off in pkgs., 75, 20, 10 and 5 with 2½ off in bulk.	
Tire bolts	60-5 off

Nuts

Semifinished	60 to 70 off

HEXAGON CAP SCREWS

Milled	80-10-5 off
Upset 1 in. diam. and smaller	85-off

SQUARE HEAD SET SCREWS

Milled	80-5 off
Upset 1 in. diam. and smaller	80-10-5 off

RIVETS

Struc., c.l., Pitts-Cleve.	3.10c
Structural, c.l. Chicago	3.20c
**7/16-inch and smaller, Pitts.	70 and 10 off
Chi., Cleve.	70 to 70 and 10 off

**Some makers quoting 70 off with freight allowed on 300 pounds or more.

Raw Materials and Semifinished Products

SEMIFINISHED MATERIAL

Prices Per Gross Ton

BILLETS AND BLOOMS

4 x 4-inch base

Pittsburgh, open-hearth	$36.00
Pittsburgh, bessemer	36.00
Youngstown	34.00
Cleveland	34.00
Philadelphia	39.30 to 41.30
Chicago	37.00
Forging, Chicago	40.00
Forging, Pittsburgh	41.00
Forging, Philadelphia	44.30 to 46.30

SHEET BARS

Pittsburgh	$36.00
Youngstown	36.00
Cleveland	35.00
Chicago	37.00

SLABS

Pitts., Young., and Cleve.	$36.00

WIRE RODS

Pittsburgh, Cleveland	$42.00
Chicago	43.00

SKELP

All grades, Pittsburgh	1.90c to 1.95c

IRON ORE

LAKE SUPERIOR ORE

Per Gross Ton, Lower Lake Ports

Old range bessemer, 51½%	$4.80
Mesabi bessemer, 51½%	4.65
Old range nonbessemer, 51½%	4.65
Mesabi nonbessemer, 51½%	4.50
High phosporus, 51½%	4.40

EASTERN LOCAL ORES

Cents per unit delivered at Eastern Pennsylvania and New Jersey furnaces

Foundry and basic, 56-63%	8.00
Copper free low phosphorus 58 to 65 per cent	nominal

FOREIGN ORE

Cents per unit, alongside docks Atlantic ports

Foreign manganiferous ore, 45-55% iron, 6-8% manganese	11.00 to 11.50
North African low phosphorus	12.00 to 12.50
Swedish foundry or basic, 65%, nominal at	9.00 to 10.00
Spanish and North African basic, 50 to 60 per cent	11.50 to 12.00
Newfoundland foundry, 55%	nominal
Tungsten spot and early fut., short ton unit, duty paid	16.00 tho 17.00

MANGANESE ORE

Prices do not include duty of 1 cent per pound of metallic manganese contained.

Brazilian	34 to 36 cents
Indian	34 to 36 cents
Caucasian, (53-55 per cent)	36 cents

FLUORSPAR

85 and 5 per cent grade

Washed gravel, Kentucky and Illinois mines, per net ton	$18.00
Washed gravel, import duty paid east. tide., gross ton	$20.15

REFRACTORIES

FIRE CLAY BRICK

Per 1000 f.o.b. works

First Quality

Pennsylvania	$43.00 to 46.00
Ohio	43.00 to 46.00
Illinois	43.00 to 46.00
Kentucky	43.00 to 46.00
Missouri	43.00 to 46.00
Maryland	43.00 to 46.00
Georgia and Alabama	40.00 to 45.00

Second Quality

Pennsylvania	35.00 to 38.00
Ohio	35.00 to 38.00
Illinois	35.00 to 38.00
Kentucky	35.00 to 38.00
Missouri	35.00 to 38.00
Maryland	35.00 to 38.00
Georgia and Alabama	30.00 to 35.00

SILICA BRICK

Pennsylvania	43.00
Joliet, Ill., East Chicago, Ind.	52.00
Birmingham	50.00 to 51.00

MAGNESITE BRICK

Per Net Ton

9 x 4½ x 2½	65.00

MAGNESITE

Net Ton Chester, Pa., and Baltimore base

Dead-burned grain magnesite	40.00

CHROME BRICK

Net ton Chester, Pa., and Baltimore base

9 x 4½ x 2½	45.00

Pig Iron

Large Additional Tonnages of Basic Sold at $18.50, Valley—Prices Generally Steady —Shipments Heavy

FURTHER sales of basic iron have established the market at $18.50, Valley, as fully 30,000 tons have been reported booked at this figure in the past two weeks. Bessemer, also is stronger, at $19, valley. Basic and foundry iron seldom have remained on a price parity for any considerable length of time, and makers of foundry and malleable, selling at $18.50 and $19, respectively, are talking of higher figures. Lake and Chicago prices remain unchanged, in districts where business is most active. Buffalo foundry iron has settled to $18 to $18.50 for shipment to eastern points. The market does not have the snap characteristic of a few weeks ago, and the chief satisfaction for furnace interests is in continuation of heavy shipments on contracts.

PITTSBURGH, May 14.—The pig iron market is firming up to the higher levels announced several weeks ago. Although new buying is not brisk, recent sales were made at the new figures and the tone of the market is strong. The sale of about 5000 tons of basic to an Ohio steelworks at $18.50, valley, follows a larger transaction in this grade at the same price a week ago. Sales of bessemer are noted at $19. Foundry iron sales still are limited to small fill-in lots, all at $18.50, base, valley. Some talk is heard of a further advance, but this is indefinite. Steelworks are not particularly active in the market, having little surplus iron available for sale. Shipments are steady and well ahead of new business. Consumers are not yet active in placing third quarter business.

Boston, May 14.—Pig iron is easier at $18 to $18.50, base, Buffalo. Sales in the past week totaled about 2500 tons. The Westinghouse Electric & Mfg. Co. bought 500 tons of 3.25 to 3.75 silicon iron for its Springfield, Mass., plant.

New York, May 14.—More interest is being displayed in third quarter foundry iron. A. P. Smith Mfg. Co., Bloomfield, N. J., is inquiring for 1000 tons of foundry for third quarter. Another interest which usually takes several thousand tons is feeling out the market. Sales the past week did not exceed 5000 tons. The foundry iron market here continues on the basis of $19, base, Buffalo, plus 50 cents for the malleable grade.

Philadelphia, May 14.—A Delaware river pipemaker has closed for a large tonnage of foundry iron to be supplied by two producers. Other activity in the market is restricted to small sales of foundry iron. Prices are unchanged.

Buffalo, May 14.—Buffalo furnaces have quoted as low as $18, base, furnace, on large eastern inquiries for third quarter, although some ask $18.50 or $19 for carloads. Local prices show no softening, with $19.50 for foundry and $20 for malleable. General Electric Co. purchased upwards of 1000 tons for eastern plants. Second quarter capacity is booked solidly. Considerable iron is going to the East by barge. Fourteen of 18 furnaces in the district are making iron.

Youngstown, O., May 14.—The valley pig iron market has been enlivened by the sale of additional basic iron, bringing total orders for one impotrant producer within the past ten days to 30,000 tons. All of this business was booked at $18.50, valley. New sales of basic pig iron in the past week have totaled about 10,000 tons. Other grades of pig iron are quiet. Small lots of foundry iron have been sold at $18.50, and malleable at $19.

Cleveland, May 14.—Pig iron shipments are holding up to the April average, but new sales are lighter, furnace interests with headquarters in Cleveland booking 14,000 tons in the past week compared with 17,000 tons in the week preceding. Local melters ordered about 2000 tons. Several inquiries from southern Ohio are pending, a Dayton melter wanting 1500 to 2000 tons, and another in that district, 1000 tons. Various other inquiries bring the total for southern Ohio to about 5000 tons. Cleveland furnaces continue to quote $18.50, base, furnace, for outside shipment and $19, base, for local consumption. Other lake furnace prices are unchanged.

Chicago, May 14.—Shipments of northern pig iron continue at the April rate. Spot orders for piecing out second quarter are in steady volume. Additional third quarter tonnage has been placed, and quiet negotiations are on for several good size orders for that period. The past few days have seen a spurt in demand for high silicon grades and specialty iron. Several tonnage sales of silvery iron are reported. A cargo of English low phosphorus iron is expected to dock in Milwaukee territory shortly. Spot and future sales of northern pig iron are reported on the basis of $20, Chicago furnace.

Eastern lake furnace iron still due here from sales earlier in the season totals 12,000 to 15,000 tons, comprising about four cargoes, in addition to three cargoes already received. One cargo is reported enroute to this district.

Cincinnati, May 14.—A few third quarter orders for pig iron trickled into this market last week. An Indiana melter bought 300 tons of northern iron and an order for 300 tons was placed by a southern Ohio consumer. The bulk of sales were in small lots and mostly fill-in orders. A northern Ohio foundry wants about 400 tons, and an Indiana melter is in the market for 1200 tons. The Andrews Steel Corp., Newport, Ky., is inquiring for 200 tons of bessemer. A northern Ohio foundry placed an order for 450 tons of southern iron. Prices are steady.

St. Louis, May 14.—While shipments of pig iron continue heavy, new buying has dropped to small proportions. Prices remain firm, though the decline in scrap prices has given an easier tone to the pig iron market. Sales in the past week amounted to approximately 3000 tons, all foundry grades for second quar-

(*Concluded on Page* 1362)

Pig Iron Prices

Per Gross Ton

Bessemer, valley furnace	$19.00
Bessemer, del. Pittsburgh	20.76
Basic, valley furnace	18.50
Basic, del. Pittsburgh	20.26
Basic, Buffalo furnace	17.50
Basic, del. eastern Pa.	20.65 to 21.00
Malleable, valley furnace	19.00
Malleable, del. Pittsburgh	20.76
Malleable, Cleve. fur. for local del.	19.00
Malleable, Chicago furnace	20.00
Malleable, Buffalo furnace	20.00
Malleable, del. eastern Pa.	22.76 to 24.40
Malleable, Granite City fur.	20.50
No. 1 foundry, Chicago furnace..	20.50
No. 1X, Eastern del., Phila.	23.26
No. 1X, Buffalo furnace	21.00
No. 2 foundry, valley furnace	18.50
No. 2 foundry, del. Pittsburgh	20.26
No. 2 plain, Buffalo furnace	19.50
No. 2 foundry, Chicago furnace..	20.00
No. 2 fdy. Cleve. fur. for local del.	19.00
No. 2 plain, del., Phila.	22.26
No. 2 plain, Virginia furnace	20.75
No. 2 plain, Buffalo, del. Boston	23.41 to 23.91
No. 2 plain, N. J., tidewater	22.28 to 22.78
No. 2 Alabama, Bir. base	15.00 to 15.50
No. 2 Tenn., Birmingham base	15.50
No. 2 Tenn., del. Cincinnati	19.19
No. 2 Alabama, del. Cincinnati	18.69 to 19.19
No. 2 Alabama, del. Chicago	21.51
No. 2 Alabama, del., Cleveland	21.76
No. 2 Alabama, del. St. Louis	19.92
No. 2X, east N. J., tidewater	22.78 to 23.28
No. 2X, eastern, del. Phila.	22.76
No. 2X, foundry, Buffalo furnace	20.00
No. 2X, Buffalo, del. Boston	23.91 to 24.41
No. 2X, Virginia furnace	20.25 to 20.75
Gray forge, val., del. Pittsburgh	19.76
Low phos., standard, valley	27.00
Low phos., standard, Phila.	24.26 to 24.76
Low phos., copper bearing fur.	23.00 to 23.50
Charcoal, Superior, del., Chicago	27.04

CANADIAN PRICES

No. 2 foundry, del. Toronto	24.10 to 24.60
No. 2 foundry, del. Montreal	25.50 to 26.00
Malleable, del. Toronto	24.10 to 24.60
Malleable, del. Montreal	25.50 to 26 00
Basic, del. Montreal	24.50 to 25.00

Silvery iron, Jackson county, O., furnaces, in per cents: 5—$23 to $24; 7—$25 to $26; 8—$26 to $27; 9—$27 to $28; 10—$29 to $30; 11—$31 to $32; 12—$33 to $34; 13—$35 to $36.

Bessemer ferrosilicon, Jackson county, O., furnaces, in per cents: 10—$31 to $32; 11—$33 to $34; 12—$35 to $36; 13—$37 to $38; 15—$41.5 to $42.50; 16—$43 to $44.

Coke

Foundry Fuel Shipments Easing Off, While Furnace Grade Continues in Heavy Demand

SHIPMENTS of Connellsville furnace coke are maintained at a high level, while demand for foundry fuel is less active. Some furnaces have renewed contracts for the remainder of the second quarter. Spot sales are noted at $2.75 to $2.85. Production in the Connellsville district has been pushed up to a new high level for the year.

Pittsburgh, May 14.—Spot sales of furnace coke are quiet, but offerings are in corresponding volume, and little surplus is overhanging the market. The situation in foundry coke is similar, although shipments on old orders are less active, as operations at some foundries are declining. The movement of furnace fuel still is heavy, reflecting sustained output at blast furnaces. Some contracts expired at the end of April and have been renewed through the remainder of the second quarter. On sales of spot furnace coke $2.75 to $2.85 generally apply. Foundry coke prices are unchanged. Coke production in the Connellsville district has advanced sharply to the highest level of the year, due to increased output by the H. C. Frick Co., although merchant output is only slightly below the March peak.

Production of coke in the Connellsville region for the week ended May 4 was 94,250 tons, compared with 79,341 tons the preceding week, according to the *Connellsville Courier*.

Boston, May 14.—Foundry coke is in steady demand, indicating that the melt is moving along at a satisfactory rate. Prices remain firm.

Chicago, May 14.—Consumption of by-product foundry coke is at a high rate, indicating recent gains in the foundry melt. May production and shipments are at about the same level as April. April shipments came close to a record for that month. All oven capacity in the district is engaged. Prices are unchanged at $8, ovens, and $8.75 for local delivery.

Cincinnati, May 14.—By-product foundry coke is moving forward on contracts, but new business is quiet. Some ovens have been allowed to cool to prevent accumulation of a large surplus. Wise county coke is reported strong, with quantity shipments to the South.

St. Louis, May 14.—Current shipments of metallurgical coke are holding up to the recent high levels, but new buying is in smaller volume, and there is evidence of a slackening in demand. The melt at mills and foundries is thought to have reached its peak for the time being, and most plants are well supplied with coke. Prices are unchanged.

Birmingham, Ala., May 14.—Demand continues steady and coke production is unchanged, independent producers moving their output. By-product foundry coke continues $5, base, Birmingham. Less than 60 of the 1390 by-product coke ovens in this district are idle.

Coke Prices

Prices per Net Ton

Beehive Ovens	
Connellsville furnace	$2.75 to 2.85
Connellsville foundry	3.75 to 4.85
New River foundry	6.00 to 6.50
Wise county foundry	4.25 to 5.00
Wise county furnace	3.50 to 4.75
By-Product Foundry	
Newark, N. J., del.	9.00 to 9.40
Chicago ovens	8.00
New England del.	11.00
St. Louis del.	9.00
Birmingham, ovens	5.00
Indianapolis, del.	8.25
Ashland, Ky., ovens, Connell, basis	6.50
Portsmouth, O., ovens, Connell, basis	6.50
Buffalo, ovens	8.75
Detroit, ovens	9.00
Philadelphia, del.	9.00

Ferroalloys

Specifications Held at Peak Rate—New Orders Small

Pittsburgh, May 14.—No letdown is noted in specifications for ferromanganese and spiegeleisen. The movement over the first four months of this year was unusually heavy, and sustained operations in the iron and steel industry are holding demand for ferroalloys at a corresponding peak. Shipments against contracts, however, comprise practically the only activity in the market, with spot orders confined only to occasional carload lots. On such business prices continue $109.79, delivered Pittsburgh, for ferromanganese and $34 for spiegeleisen. Special ferroalloys are in steady demand at unchanged prices.

New York, May 14.—Heavy shipments against contracts, and a steady flow of new orders for carload lots, feature the ferromanganese market. New business continues to bring $105, duty paid, tidewater. Spiegeleisen shipments also are heavy, with a good volume of spot carload sales at $34 furnace for the 19 to 21 per cent grade. Manganese ore continues to come into this country in a larger volume than was anticipated, based on consumption in previous years. The washed grade of Caucasian ore is 36 cents per unit, c.i.f. tidewater.

Ferrotungsten is higher at $1.40 to $1.50 a pound contained. The last reported sale was $16.50 a short ton unit for scheelite. Other special ferroalloys are unchanged but firm, with shipments continuing unusually large.

Bolts, Nuts, Rivets

Specifications Maintained at High Level—Jobbers Buying

NUT AND BOLT PRICES, PAGE 1348

Pittsburgh, May 14.—Specifications for bolts, nuts and rivets are well maintained at the April pace. Jobbers have been buying fairly freely and are turning their stocks in good volume. Demand from other consumers is well diversified. Operations are steady at 65 to 75 per cent. Prices are firm at 3.10c, Pittsburgh, for large rivets and 60 to 70 off for bolts and nuts.

Cleveland, May 14.—Moderate buying of rivets is being done by jobbers and consumers on the new price basis, 2.10c. Because the consuming rate is high miscellaneous buyers are running out of stocks, collected before the price advance. Nuts and bolts are active. Orders are small but numerous and these products are on a firm price basis.

Chicago, May 14.—Mill orders for bolts and nuts are steady. Industrial users of large structural rivets are specifying at about the same rate as a year ago, but building trade orders for rivets are much lighter. In general, specifications are slightly ahead of last year. Operations have gained slightly and now are 70 to 75 per cent. Bolts and nuts are steady at 60 to 70 off list. Rivets, 7/16-inch and smaller, are quoted on the basis of 70 to 70 and 10 off.

Class I railroads on April 15 had 258,253 surplus freight cars in good repair and immediately available for service, the car service division of the American Railway association announced. This was a decrease of 13,100 cars compared with April 8, when there were 271,353 cars.

Ferroalloy Prices

(In dollars, except ferrochrome)

Ferromanganese, 78 to 82 per cent, tidewater, duty paid	$105.00
Ferromanganese, del. Pittsburgh	109.79
Spiegeleisen, 19 to 21 per cent, domestic furnace, spot†	34.00
*Ferrosilicon, 50 per cent, freight allowed, carloads	88.50
*Do, less carload	88.50
Do., 75 per cent	130.00 to 150.00
Ferrochrome, 66-70 chromium, 4-6 carbon, cts. per lb. con., del.	11.00
Do., for spot delivery	11.50
Ferrotungsten, stand., lb. cont.	1.30 to 1.35
Ferrovanadium, 30-40 per cent, per lb., contained, on analysis	3.15 to 3.65
Ferro-carbon-titanium carload, producer's plant, net ton	160.00
Do., one ton to carload	170.00
Ferrophosphorus, per ton, carload 17 to 19 per cent, Rockdale, Tenn., basis (18 per cent)	91.00
Ferrophosphorus, electrolytic, per ton, carload, 23-25% f.o.b. Anniston, Ala. (24 per cent)	122.50

†Quantity diff. apply on 100 tons and over.
*These prices contract, spot $5 higher.

Scrap

Little Change Shown—Prices Decline Slowly—Supply Continues Large—Buyers Resist Quotations

REJECTION of scrap by steel mills is being felt severely by dealers and is causing some distress, especially at Chicago. Prices are sagging slowly as buyers resist and as supplies are large from all sources, with prospects of continuance. Dealers are holding as firmly as possible.

Chicago, May 14.—Due to recent numerous rejections of heavy melting steel, iron and steel scrap dealers have become hesitant on shipments to steelworks consumers and the movement has slowed down perceptibly. This has tended to check the downward curve in prices. Malleable and steel foundry grades and specialty scrap are holding to recent firm prices, while the weakening tendency is confined largely to steelmaking grades. All dealers have rejected cars of steelworks scrap on hand and have met difficulty in moving some of this material. Larger consumers are resisting prices. Consumption remains unchecked, giving a strong undertone. Heavy melting steel is quoted more generally at $15.50 to $16, although consumers have turned down offerings by dealers at $15.75. Large consumers of cast iron borings are out of the market. Small lots have been sold as high as $10.75, but the market is being quoted by most sellers at $10 to $10.50. Difficulty is found in marketing the grades of scrap used by the gray iron foundries, which are operating less actively than had been expected. When dealers generally are

Iron and Steel Scrap Prices

Corrected to Tuesday noon. Gross tons delivered to consumers, except Detroit where dealers' buying prices are shown

Steel Works Scrap

HEAVY MELTING STEEL

Birmingham	12.00 to 12.50
Boston, dealers	11.50 to 11.75
Boston, No. 2	10.00 to 10.50
Buffalo, No. 1	17.00 to 17.50
Buffalo, No. 2	14.50 to 14.75
Chicago	15.50 to 16.00
Cincinnati, deal.	13.00 to 13.50
Cleveland, No. 1	15.50 to 16.00
Cleveland, No. 2	15.00 to 15.50
Buffalo, No. 1	17.00 to 17.50
Detroit, No. 1	14.00 to 14.25
Detroit No. 2	12.25 to 12.50
East Pa., del. mill	16.50 to 17.00
N. Y., deal., R. R.	12.50 to 13.00
N. Y., deal. yd.	8.25 to 9.50
Pittsburgh, No. 1	17.25 to 18.25
Pittsburgh, No. 2	15.50 to 16.00
St. Louis, No. 1	14.00 to 14.25
Valleys, No. 1	17.50 to 18.00

COMPRESSED SHEETS

Buffalo (dealers)	14.50 to 14.75
Chicago	13.75 to 14.25
Cleveland	15.00 to 15.50
Detroit	14.00 to 14.25
E. Pa. new mat.	15.00
Pittsburgh	17.50 to 18.00
Valleys	17.50 to 18.00

BUNDLED SHEETS

Buffalo	12.00 to 12.50
Cincinnati, deal.	11.00 to 11.50
Cleveland	13.00 to 13.50
Eastern Pa.	11.50 to 12.00
Pittsburgh	16.00 to 16.50
St. Louis	10.00 to 10.50

SHEET CLIPPINGS LOOSE

Chicago	9.00 to 9.50
Cincinnati	9.50 to 10.00
Detroit	9.00 to 9.50
St. Louis	10.00 to 10.50

STEEL RAILS, SHORT

Birmingham	14.00 to 14.50
Boston	11.25 to 12.25
Buffalo	19.50 to 20.00
Chicago (3 feet)	18.50 to 19.00
Chicago, 2 ft. and under	19.50 to 20.00
Cincinnati, deal.	19.00 to 19.50
Detroit	17.00 to 17.50
Pittsburgh (3 ft.)	19.50 to 20.50
Pittsburgh, 2 ft. and under	20.00 to 21.00
St. Louis	16.50 to 17.00

STOVE PLATE

Birmingham	12.50 to 13.00
Boston consumers	11.50 to 12.00
Buffalo	13.25 to 13.75
Chicago, net	12.75 to 13.25
Cinn., deal., net	9.25 to 9.75
Detroit, net	9.00 to 9.50
Eastern Pa.	12.50 to 13.00
N. Y. deal, mill	8.25 to 8.50
Pittsburgh	12.00 to 12.50
St. Louis	13.25 to 13.75

COUPLERS, SPRINGS

Buffalo	19.50 to 20.00
Chicago	17.00 to 17.50
Eastern Pa.	20.50 to 21.50
Pittsburgh	20.50 to 21.00
St. Louis	14.75 to 15.25

ANGLE BARS—STEEL

Chicago	17.50 to 18.00
St. Louis	14.50 to 15.00

LOW PHOSPHORUS

Buffalo, billets and bloom crops	19.50 to 20.50
Eastern Pa.	22.00 to 23.00
Pitts. billet and bloom crops	22.50 to 23.00
Cleve. billet and bloom crops	17.50 to 18.00

FROGS, SWITCHES, GUARDS

Chicago	16.75 to 17.25
St. Louis	15.00 to 15.50

SHOVELING STEEL

Chicago	15.50 to 16.00
Cleveland	11.75 to 12.00
Detroit	10.75 to 11.00
Pittsburgh	17.25 to 18.25
St. Louis	13.00 to 13.50

Iron Mill Scrap

RAILROAD WROUGHT

Birmingham	10.00 to 11.00
Boston, dealers	11.25 to 12.00
Buffalo, No. 1	13.50 to 14.00
Buffalo, No. 2	16.00 to 17.00
Chicago, No. 1	16.50 to 17.10
Chicago, No. 2	15.50 to 16.00
Cinn., No. 2	13.00 to 13.50
Eastern Pa.	16.00 to 16.50
N. Y., No. 1 deal.	12.00 to 12.50
Pittsburgh, No. 2	17.75 to 18.25
St. Louis, No. 1	13.50 to 14.00
St. Louis, No. 2	13.50 to 14.00

SPECIFICATION PIPE

Boston	10.50 to 11.00
Eastern Pa.	15.50 to 16.00
New York, deal.	11.25

BUSHELING

Buffalo, No. 1	14.50 to 14.75
Chicago, No. 1	13.50 to 14.00
Cinn., No. 1 deal	11.00 to 11.25
Cinn. No. 2	7.00 to 7.50
Cleveland, No. 1	13.00 to 13.50
Cleveland, No. 2	11.25 to 11.50
Detroit, No. 1	12.50 to 13.00
St. Louis, No. 1	10.00 to 10.50

MACHINE SHOP TURNINGS

Birmingham	7.00 to 8.00
Boston	6.50 to 6.75
Buffalo	7.75 to 8.00
Chicago	9.00 to 9.50
Cincinnati, deal.	8.50 to 9.00
Cleveland	9.50 to 10.00
Detroit	7.00 to 7.25
Eastern Pa.	11.50
New York, deal	8.00
Pittsburgh	10.75 to 11.25
St. Louis	8.00 to 8.50
Valleys	11.50 to 12.00

MIXED BORINGS, TURNINGS
For blast furnace use

Boston, dealers	5.75 to 6.00
Buffalo	11.25 to 11.75
Cincinnati, deal.	9.00 to 9.25
Cleveland	11.25 to 11.50
Detroit	9.25 to 9.75
Eastern Pa.	10.50 to 11.00
New York, deal	7.00 to 7.25
Pittsburgh	11.50 to 12.50

CAST IRON BORINGS

Birmingham, chem.	13.00 to 13.50
Birmingham, plain	7.00 to 8.00
Boston chem.	10.00 to 10.25
Boston, dealers	6.50 to 6.75
Buffalo	11.25 to 11.75
Chicago	10.00 to 10.50
Cincinnati, deal	9.00 to 9.25
Cleveland	11.25 to 11.50
Detroit	9.25 to 9.50
Eastern Pa.	11.00 to 11.50
Eastern Pa., chem.	14.50 to 15.00
New York, deal	7.00 to 7.75
Pittsburgh	11.50 to 12.50
St. Louis	9.50 to 10.00

PIPE AND FLUES

Cincinnati, deal.	9.00 to 9.50

RAILROAD GRATE BARS

Buffalo	12.50 to 13.00
Chicago, net	12.50 to 13.00
Cincinnati	10.00 to 10.50
Eastern Pa.	12.50 to 13.00
New York, deal	8.75 to 9.75
St. Louis	12.50 to 13.00

FORGE FLASHINGS

Boston, dealers	9.50 to 10.50
Buffalo	13.75 to 14.25
Chicago	10.50 to 11.00
Cleve. over 10 in.	14.00 to 14.50
Detroit	12.00 to 12.50

FORGE SCRAP

Boston, dealers	9.00 to 9.50
Chicago	18.00 to 18.50
Eastern Pa.	14.00 to 14.50

ARCH BARS AND TRANSOMS

Chicago, net	21.50 to 22.00
St. Louis	21.50 to 22.00

Iron, Steel Works Scrap

AXLE TURNINGS

Boston, deal	6.75 to 7.00
Buffalo	14.50 to 15.00
Chicago	13.00 to 13.50
Cleveland	12.50 to 13.00
Eastern Pa.	15.00
Pittsburgh	15.75 to 16.75
St. Louis	10.00 to 10.50

STEEL CAR AXLES

Birmingham	17.00 to 18.00
Boston, ship point	17.00 to 17.50
Buffalo	19.50 to 20.00
Chicago	19.05 to 19.60
Eastern Pa.	22.75 to 23.00
Pittsburgh	21.50 to 22.00
St. Louis	19.00 to 19.50

SHAFTING

Boston, ship point	14.00 to 14.25
Chicago	17.35 to 17.90
Eastern Pa.	19.00 to 20.00
New York, deal	14.50 to 15.00
St. Louis	18.50 to 19.00

Iron Foundry Scrap

CAR WHEELS

Birmingham, iron	11.00 to 12.00
Boston, iron	14.00 to 14.50
Buffalo, iron	14.00 to 14.50
Buffalo, steel	19.50 to 20.00
Chicago, iron	14.50 to 15.00
Chi., rolled steel	18.75 to 19.25
Cincinnati	12.50 to 13.00
Eastern Pa. cast.	16.50
Eastern Pa., rolled	20.50 to 21.50
N. Y., iron, deal.	12.00 to 12.50
Pittsburgh, iron	16.00 to 16.50
Pittsburgh, steel	20.50 to 21.00
St. Louis, iron	14.00 to 14.50
St. Louis, steel	17.00 to 17.50

No. 1 CAST SCRAP

Birmingham, cup	13.00 to 14.00
Buffalo	16.25 to 16.75
Boston, textile	16.50 to 17.00
Chicago, mach.	17.35 to 17.90
Chicago, railroad	16.80 to 17.35
Chicago, agri.	16.25 to 16.80
Cincinnati, mach. cupolas, gross	19.50 to 20.00
Cleveland, cupola	16.50 to 17.00
Detroit, net	13.50 to 13.75
East, Pa., cupola	16.00 to 17.00
N. Y., cup., deal.	13.00 to 13.50
N. Y., del. local foundries	17.00
Pittsburgh, cupola	15.00 to 16.00
San. Fran., del.	13.50 to 14.00
Seattle	15.50 to 16.00
St. L. No. 1 mach.	15.25 to 15.75
St. Louis, No. 1	14.50 to 15.00
Valleys	16.50 to 17.00

HEAVY CAST

Boston	10.50 to 11.00
Buffalo, breakable	13.00 to 13.50
Cleve., breakable	12.50 to 12.75
Detroit, auto, net	15.00 to 16.00
Detroit, breakable	9.50 to 10.00
Eastern, Pa.	15.50 to 16.00
New York, deal	11.00 to 11.50
Pittsburgh	13.00 to 13.75

MALLEABLE

Boston, railroad	16.50 to 17.00
Buffalo	19.00 to 19.50
Chicago, agri.	16.00 to 16.50
Chicago, railroad	18.50 to 19.00
Cinn., R. R., deal.	15.25 to 15.75
Cinn., agri., deal.	14.25 to 14.75
Cleveland, rail	16.00 to 16.50
Detroit, auto	15.00 to 15.25
St. Louis, rail	15.75 to 16.25

Miscellaneous Scrap

RAILS FOR ROLLING
5 feet and over

Birmingham	13.50 to 14.50
Boston, dealers	11.75 to 12.00
Rails scrap, Boston	10.50 to 12.00
Skeleton, Boston	9.00 to 10.00
Buffalo	16.50 to 17.50
Chicago	17.50 to 18.00
Eastern Pa.	18.00 to 18.50
New York	13.00 to 14.00
St. Louis	15.50 to 16.00

LOCOMOTIVE TIRES

Chicago, cut	19.00 to 19.50
St. Louis, No. 1	16.00 to 16.50

LOW PHOS. PUNCHINGS

Chicago	18.00 to 18.50
Pittsburgh	19.50 to 20.50

quoting 2-foot rail ends at $19.50 to $20, sales have been made as high as $20.50 recently.

Boston, May 14.—Dealers who were holding for higher prices on iron and steel scrap have apparently come to the conclusion that expectations are not to be realized, with the result they are now making efforts to sell. Prices have not changed to any marked extent, but the trend appears lower. Business the past week centered in heavy melting steel, mixed borings and turnings and machine shop turnings, all of which are quoted lower than a week ago.

New York, May 14.—Weakness again characterizes the scrap dealers' buying market. Downward revisions have been made in several grades, including clean cast borings, cast iron car wheels, No. 1 heavy cast, shafting, No. 1 railroad steel, stove plate for mill consumption and skeleton steel. Little fresh consuming demand is noted and in the case of at least two leading consumers, one at Claymont, Del., and the other at Coatesville, Pa., shipments have been temporarily suspended.

Buffalo, May 14.—Scrap lacks buying support. Long expected tonnage deals in No. 1 heavy melting steel have failed to materialize. Dealers say prices have not declined more than 25 cents and that specialties are fully as high as at any time this quarter.

Cleveland, May 14.—Heavy water shipments of scrap from Michigan territory are flooding melters here and in nearby sections with scrap so that they are limiting rail shippers to a stipulated quota of cars per day. Heavy melting steel here is $15.50 to $16 and in the Mahoning valley $17.50 to $18, where hydraulic compressed has sold at the same figure.

Detroit, May 14.—While the trend of the scrap market is downward, heavy water shipments out of Detroit are tending to maintain strength in connection with Detroit proper. No. 1 heavy melting steel is down 25 cents as are machine shop turnings and mixed busheling. Loose sheet clippings have declined 50 cents. No. 1 machinery cast is stronger at $13.50 to $13.75.

Cincinnati, May 14.—Scrap dealers are still sitting tight in a market which continues to display weakness. Heavy melting steel remains firm at present prices. Some activity is reported in rails. Cast iron borings and mixed borings and turnings dropped 25 cents to a $9 to $9.25 spread. Railroad malleable is off 25 cents and the bottom price on machine shop turnings dropped 25 cents.

St. Louis, May 14.—The trend of prices of iron and steel scrap continues downward, and a number of important items, mainly in the steel group, are lower. No. 2 heavy melting, knuckles and couplers and heavy shoveling were among the commodities cut fractionally. Purchasing is steady and in good volume, but offerings are too large to be readily absorbed. Railroad lists are the largest in months, and the movement from the country is gaining in momentum.

Birmingham, Ala., May 14.—Conditions are unchanged in the iron and steel scrap market. Melters are taking tonnage on contracts. Heavy melting steel continues at $12.50 for selected grade. Supplies are ample for requirements.

Canadian Scrap

Dealers' Buying Prices

MONTREAL

Per Gross Ton

Iron axles	$22.00
Steel axles	20.00
Car wheels	16.00
Stove plate	13.00
Wrought pipe	6.00
Turnings	6.50
Heavy melting steel	8.00

TORONTO

Steel axles	15.00
Iron axles	17.00
Heavy melting steel	9.50
Turnings	7.50
No. 1 mach. cast (net)	16.00
Malleable (net)	14.00

Philadelphia, May 14.—Iron and steel scrap is quiet and heavy. Contract shipments have filled consumers' reserves for current needs.

Pittsburgh, May 14.—Prices of iron and steel scrap continue to decline. A substantial tonnage of heavy melting steel has been sold at $17.75 to $18, in exceptional cases at less. Though some sales have been at as high as $18.25 the market is represented by $17.75. Heavy melting steel on the Pennsylvania railroad list, which usually commands a premium over No. 1, brought $18.50, a decline of 75 cents to $1 below the April level. Losses of 25 to 50 cents are distributed among other grades.

Toronto, Ont., May 16.—Canadian iron and steel scrap markets are without feature, but demand is strong. Sales of machinery cast are in good volume with local dealers offering $16 per net ton and but little offered. Montreal dealers are offering $17 per gross ton for machinery cast, but report only limited supplies available.

Semifinished Steel

Demand Continues Heavy—Market Is Strong

SEMIFINISHED STEEL PRICES, PAGE 1348

Pittsburgh, May 14.—Pressure for delivery of semifinished steel against old orders has not diminished and producers still are unable to take new business. Shipments on new orders would of necessity be deferred until the third quarter but negotiations for that period have not been numerous. The impression prevails that current prices of $36 for rerolling billets and sheet bars would be the minimum figure for the third period. Producers of finished products are forced to balance rolling schedules to take care of the restricted supply of semifinished steel, but few hardships have been encountered. Wire rods are in good demand and firm at $42, and forging billets are steady at $41.

Cleveland, May 14.—Demand for sheet bars, billets and slabs continues urgent. The leading local producer is operating at capacity, and as its contract customers are seeking more tonnage than originally anticipated it has no material available for the open market. Sheet bars are being shipped on $35, Cleveland and Youngstown, contracts, and billets and slabs at $34, these prices being booked prior to the general advance to $36 Youngstown on all three grades.

Youngstown, O., May 14.—Semifinished steel shortages are less acute in most instances. Billets, slabs and bars are being shipped at the old price of $35, but all new arrangements are at $36, Pittsburgh and Youngstown. Wire rods are $42, Pittsburgh and Cleveland. Skelp holds at 1.90c, Pittsburgh.

Chicago, May 14.—No relief has been obtained in the tight semifinished market. Buyers continue to purchase from eastern and southern producers. Forging billets and special forging bars are being purchased outside the district in steady tonnages. Commercial, or rerolling billets, 4 x 4-inch base, are quoted more generally at $37, Chicago.

Refractories

Demands on Makers Sufficient for Several Months

REFRACTORIES PRICES, PAGE 1348

Pittsburgh, May 14.—Refractory sellers report continuation of steady business which has prevailed since the first of the year. April sales compared favorably with those of preceding months, and were slightly higher in several instances. Business now on books of some producers will insure steady production through the remainder of the quarter. A new lining for the Cherry Valley furnace of the Hanna Furnace Co. has been placed. All material for the Neville Island project of the Davison Coke & Iron Co. has been ordered and considerable material already has been installed. The Bethlehem Steel Corp.'s improvement program for its Cambria plant will involve a large number of brick. Sellers report prices the most satisfactory in a number of years and quoted levels are well observed. Current prices are $43 to $46 for first quality fire clay brick and $35 to $38 for second quality material. Silica brick continues $43, and magnesite brick $65.

Lockout Is Enjoined

New York, May 14.—A temporary injunction may delay the lockout of 75,000 workmen here on building projects costing $150,000,000, scheduled for tomorrow. Building trades employers ordered the lockout affecting the trades in a sympathetic strike in support of electrical workers organization No. 3.

The Economy Scaffold Co., Chicago, plans a 2-story plant at Broadview, Ill.

The Market Section

Bars

Some Improvement in Delivery as Mills Continue Capacity Production—Prices Are Firm

PRODUCERS of steel bars are making some progress in reducing time of delivery but not sufficient to please consumers. Some anxiety is being shown by buyers about third quarter coverage and efforts are being made to obtain contracts. Books have not been opened. Stocks in hands of consumers are small. Prices are unchanged and show firmness.

BAR PRICES, PAGE 1347

Chicago, May 14.—Fresh interest is being shown by consumers of bar mill and other finished steel products in third quarter protection. Feelers and definite tonnage offers have been presented to mills. Producers are giving no indications as to the time of opening third quarter books. Deliveries on bars, as on plates, are slightly more comfortable in view of the fact little new tonnage is being added to mill books. Sales consist of spot and fill-in orders. One producer is able to offer delivery accommodations inside of 14 weeks, as contrasted with as high as 16 weeks late last month and early in May. Recent orders hardly can be accommodated in second quarter. Prospects are for continued capacity bar mill operations for at least 30 days and probably through June. Industrial consumers have virtually no stocks and a check-up shows no speculative tendencies. Tapering in orders for medium-priced automobiles has had no appreciable effect in automotive parts makers' schedules in this district. Drop forgers are operating full. Further scarcity is reported in special forging bar steel, consumers buying important tonnages from eastern mills. Tractor demand is about 50 per cent ahead of 1928 sales.

Most miscellaneous soft steel bar tonnage is being sold at a maximum of 2.10c, Chicago, although mixed carload orders involving interplant shipment command higher prices. Where shipment costs are unusually high, buyers turn to warehouses. Alloy steel bar mills are operating at capacity, with prices unchanged.

New York, May 14.—Demand for steel bars has shown no decline and there not only is a continued good volume of specifications but also numerous hurry-up demands. In some instances premiums of $1 a ton have been offered for spot shipment. So far no sales at premiums have been reported, mills believing contract prices should be observed. As a rule two to three weeks are the earliest deliveries available. The market continues firm at 1.95c to 2.05c, base, Pittsburgh.

Pittsburgh, May 14.—Specifications for merchant steel bars hold to the improved rate noted the latter part of April. Mills have had some success in improving delivery and are able to make shipment in two to three weeks instead of the three to four weeks in effect a month ago. Buying continues well distributed. Little inquiry as yet has been received for third quarter tonnage and mills are not disposed to open books. The current market is steady at 1.95c, Pittsburgh.

Refined iron bars are in fair demand at unchanged prices of 2.75c to 4.25c, Pittsburgh.

Cleveland, May 14.—Soft steel bar demand is little changed from a month ago. Incoming business averages 75 to 80 per cent of shipments, insuring a May production almost the equal of April. Low-priced automobile makers are taking relatively more bars than makers of more expensive cars. Bars are 1.95c, base, Cleveland, from local mills and 1.95c to 2.00c, delivered by outside mills.

Philadelphia, May 14.—Steel bar specifications have eased off, compared with the recent peak, but mills still are generally unable to promise delivery earlier than two to five weeks. Prices are firm at 1.95c to 2.05c, base, Pittsburgh.

Buys Assembly Site

New York, May 14.—Ford Motor Co., Detroit, has purchased a 30-acre tract for a large assembly plant at Edgewater, N. J. The tract has a frontage of 820 feet on the Hudson river.

Brunson Mfg. Co., New Orleans, manufacturer of piston rings, has changed its name to Combination Piston Ring Co.

Plates

Market Continues Active, but Deliveries Are Easier—Heavy Carry-over Is Indicated

PLATE deliveries are easier, and sales show a quieter tendency. Additional oil tank work at Chicago has brought the total pending to 15,000 to 20,000 tons. Eastern railroads, oil companies, tank and boiler shops, shipyards and structural fabricators are taking good tonnages. Unfilled second quarter tonnage in the Middle West is reported to be the largest since the war.

PLATE PRICES, PAGE 1347

New York, May 14.—Demand for steel plates for general purposes continues active. Railroads, oil companies, tank and boiler shops, shipyards and structural fabricators are taking good tonnages. Demand for cars has been heavy and for locomotives fair. Eastern mills continue to have full schedules, with deliveries from one to six weeks.

Plans for a 5000 to 6000-ton steel plate pipe line to be erected in the Borough of Queens are expected to materialize in two or three weeks, and this will be followed by another 3500-ton line later for Queens. A pipe line to be laid between Newark and Elizabeth, N. J., soon, will take about 8000 tons of plates. A large tonnage will be required for a line to come out for bids shortly at Dallas, Tex.

Pittsburgh, May 14.—Plate producers are receiving a steady volume of specifications, which show an increase so far in May compared with the rate a month ago. Demand has not been of sufficient volume, however, to increase backlogs and delivery is fairly prompt. Freight car builders are contributing an important share of current demand. The market generally is steady at 1.95c, Pittsburgh.

Philadelphia, May 14.—Plate mill operations in the East continue full, with mills scheduled one to six weeks ahead. The mills are booking considerable tonnage for other districts. Prices are firm at 1.95c to 2.05c, base, Pittsburgh, or 2.05c to 2.15c, base, Coatesville.

Cleveland, May 14.—Plate orders are small. Otis Steel Co. plates were specified for four locomotives awarded by Nickel Plate to Lima Locomotive Works. United Welding Co., Middletown, O., is low bidder on 1500 tons or more for a water intake line for Detroit. Plates are firm at 1.95c, Pittsburgh. A local plate mill is on a 75 per cent basis and is able to make deliveries within a week or two.

Chicago, May 14.—Plate tonnage added to mill books includes 5000 tons for oil tank work in the South. Active oil tankage inquiry now is 15,000 to 20,000 tons for refinery work in the South and Southwest. Plate deliveries are a shade easier. One mill now finds 14 weeks as the limit on its obligations. In recent weeks producers have been unable to promise shipments on certain sizes inside of 16 weeks. Carry-over of second

quarter tonnage into the third period is expected to be the heaviest since the war years. Plate buyers are showing interest for third quarter coverage. Sales are quiet preceding the opening of books for third quarter. Several large plate users in this territory continue to order from eastern mills. The price of 2.10c, Chicago, is reported the usual maximum to miscellaneous buyers.

CONTRACTS PLACED

725 tons, 30 to 48-inch welded steel pipe, East Bay municipal utility district, Oakland, Calif., 575 tons to Western Pipe & Steel Co., and 150 tons to Steel Tank & Pipe Co.
160 tons, four locomotives, Nickel Plate railroad, Cleveland, to Otis Steel Co., through Lima Locomotive Works.
125 tons, steel tank and tower, Orange, Calif., to Chicago Bridge & Iron Works.

CONTRACTS PENDING

1500 tons, for 9300-foot water intake at Eight Mile road, Detroit. United Welding Co., Middletown, O., low bidder.
575 tons, 24-inch lap welded or welded steel pipe, Los Angeles; bids May 14.
450 tons, plates and shapes, lock gates, Hastings dam, Mississippi river, for United States engineers, St. Paul; Dravo Contracting Co. low.

Operating Rates

Chicago at Capacity—Pittsburgh 96—Buffalo Near Top

Chicago—Operations continue at 98 per cent or virtual capacity. Repairs and shortages have altered finishing mill schedules slightly. Ingot output remains unchanged. Twenty-nine of the 36 blast furnaces are blowing, the leading interest having 12 active at Gary, 9 at South Chicago, 1 at Joliet.

Pittsburgh—Despite recent repairs to some units, operations hover around 95 per cent with open-hearth production at capacity wherever possible. Sheet production is increased to an average of 97 to 98, and strip mills run full force. Tin plate lags slightly. Pipe mills are unchanged, producing welded stock at 55 to 60 and seamless at 75 to 90 per cent.

Buffalo—With no recession to date, 32 to 33 of 37 open hearths are in constant operation. Repairs prevent 100 per cent rate. No letdown is seen until May 30 at earliest.

Youngstown—District schedules this week are a record for May. Of 51 independent open hearths, 50 are at capacity. More steel will be poured this week than in the period last October when, for the first and only seven-day week, all 51 independent furnaces were active. All plants are scheduled to operate through Sunday. Steel corporation plant is at 90 per cent, while steelmaking average for the district is higher. Bessemer operations average 80 and pig iron output is at the highest rate since the war. Of the valley's 34 available stacks, 30 are active.

Pipe

Detroit Buys Centrifugal—Chicago Considers $45.50 Bid on 770 Tons of 24-Inch

DETROIT awards contract for 3340 tons of centrifugal cast pipe. Three general contracts were let in the West, involving more than 1300 tons, while 3634 tons are pending in 10 projects there. Low bid on 770 tons of 24-inch delivered at Chicago is about $45.50. Steel pipe activity is fair with boiler tube and mechanical tubing active. Prices are firm in most markets.

PIPE PRICES, PAGE 1348

Chicago, May 14.—Cast pressure pipe buying is less than a year ago in the north central markets, despite several large individual awards in the past few weeks. Bids on the 770 tons of 24-inch cast pipe for Chicago were on the basis of delivery at the site, with the delivered quotation approximately $45.50. Detroit has awarded 3340 tons of 6 and 16-inch centrifugal pipe. Columbus, O., will receive bids May 17 on 900 tons of 4 to 16-inch cast pipe. Subdivision work is slow in materializing. Several fabricators have fair backlogs of small-lot orders, one seller reporting three times as much small-lot tonnage as a month ago. A fair-sized public utility order is pending in the Chicago territory. Chicago delivered quotations are reported steady for the larger sizes in carload orders on the basis of $45.20 to $46.20, or $37 to $38, base Birmingham.

New York, May 14.—Cast pipe demand continues exceedingly sluggish, with private companies as well as municipalities manifesting little interest. Included in scattered inquiries is 195 tons for local water department. Prices are easy.

Pittsburgh, May 14.—Demand for merchant pipe shows moderate expansion, particularly compared with the rate of one and two months ago. Restricted demand for seamless material from the oil country still prevails, but continued activity is noted in boiler tubing and mechanical tubing. The line pipe market is devoid of additional new business although it is understood that some material for the 1400-mile gas line of the Southern Natural Gas Corp. has been placed with large mills.

Cleveland, May 14.—Replacement orders for pipe occasionally are awarded by both plumbers' supply and mill supply jobbers. The turnover, however, is not particularly rapid.

Birmingham, Ala., May 14.—One of the larger cast iron pressure pipe shops of the district has increased its output, but on the whole production is unchanged at about 80 per cent. Lettings are not aggregating particularly high but much pipe is moving. The market is not as active as was anticipated. Pig iron buying is against early requirements only with these interests. The price base is firm, $37 to $38 on 6-inch and over sizes. Some yard stocks have been reduced.

Boston, May 14.—West Springfield, Mass., awarded 100 tons of 16-inch pipe, constituting the only municipal letting in the past week. Revere, Mass., opened bids on 200 tons of 6 to 12-inch, Swampscott, Mass., on 150 tons of 6-inch and East Bridgewater, Mass., on 144 tons of 6-inch. Private business is satisfactory and prices are unchanged.

Youngstown, O., May 14.—Demand for steel pipe is showing some improvement, although still slow in comparison with other iron and steel products. Lapweld tonnage placed so far this month is heavier than in the corresponding period last month. The improvement in buttweld demand has been less than in lapweld. Operations are only slightly above 60 per cent.

CONTRACTS PLACED

29,000 feet, 21,000 feet of 6-inch and 8000 feet of 8-inch pipe for St. Clair Shores, Mich., to McWane Cast Iron Pipe Co., through contractor.
3340 tons, 6 and 16-inch centrifugal pipe for Detroit, 1140 tons of 16-inch to United States Pipe & Foundry Co., which also booked a part of 2200 tons of 6-inch in the same order, the remainder of 6-inch having been divided between American Cast Iron Pipe Co. and James B. Clow & Sons.
254 tons, 4 to 8-inch class 150, Arroyo Grande, Calif. to United States Pipe & Foundry Co.
100 tons, 8 and 16-inch class F pipe for Milwaukee. Awarded May 14 to unstated interest.
100 tons, 16-inch pipe for Springfield, Mass., to Warren Foundry & Pipe Co.

CONTRACTS PENDING

1123 tons, 6 and 8-inch class B, Silver City, N. M. Bids May 31.
770 tons, 24-inch pipe for Chicago, Glamorgan Pipe & Foundry Co. low bidder at $45.45, delivered at site, involving special delivery charge.
724 tons, 12 and 20-inch class B, sewer system, Klamath Falls, Oreg. General contract to Hartenbower Bros.
499 tons, 4 to 16-inch class B pipe, improvement Kaufmann avenue, South Gate, Calif. General contract to V. Kovacevich.
480 tons, 4 to 16-inch class B, Southgate, Calif.; Lee R. Weber low bidder.
360 tons, 14 and 16-inch class B, Oceanside, Calif. Bids May 22.
341 tons, 6 to 12-inch class B, Oceanside, Calif. Bids May 22.
338 tons, 4 to 12-inch class B, improvement municipal district No. 1, Southgate, Calif. Bids May 14.
226 tons, 6 and 8-inch class B, Great Falls, Mont.
200 tons, 6 to 12-inch, Revere, Mass. Bids taken.
150 tons, 6-inch, Swampscott, Mass. Bids taken.
144 tons, 6-inch, East Bridgewater, Mass. Bids close May 14.

Bids opened.
217 tons, 4 to 12-inch class B, Globe, Ariz. Bids opened.
200 tons, 6 to 12-inch pipe for Rochelle, Ill., to Roy Correll, contractor.
195 tons, 6, 8 and 12-inch cast pipe, Borough of Queens, general contractors' bids opened May 14 by the department of water supply, gas and electricity, New York.
193 tons, 4 to 8-inch class B, improvement Millbrea section, Redwood City, Calif. Bids May 20.
132 tons, 6-inch class B, improvement Percy street, Yuba City, Calif. Bids opened.
104 tons, 4 to 8-inch class C., improvement Jefferson Park., Daly City, Calif., general contract to California Construction Co.

Tin Plate

Specifications Placed for July—Canmakers Active

TIN PLATE PRICES, PAGE 1348

Pittsburgh, May 14.—A good volume of specifications for tin plate have been received for July shipment. May 15 ordinarily is the final date for placing specifications for shipments during that period. Producers have not opened books for the last half, but the impression prevails there will be no change from the current price of $5.35 per 100-pound base box, Pittsburgh. Canmakers are active in placing specifications and mills are well engaged, operations for the district averaging slightly below capacity.

Orders of United States Steel Still Gain

Unfilled bookings of the United States Steel Corp. as of April 31 increased for the fifth consecutive month, amounting to 4,427,763. This is an increase of 17,045 tons, or 0.38 per cent. Comparisons follow:

Date	Total	Change, tonnage	Change, per cent	
Apr. 31, 1929	4,427,763	17,045+	0.38	+
Mar. 31, 1929	4,410,718	266,377+	5.7	+
Feb. 28, 1929	4,144,341	34,854+	0.84	+
Jan. 31, 1929	4,109,487	132,775+	3.34	+
Dec. 31, 1928	3,976,712	303,712+	8.25	+
Nov. 30, 1928	3,673,000	78,030—	2.80	—
Oct. 31, 1928	3,751,030	52,662+	1.42	+
Sept. 30, 1928	3,698,368	74,325+	2.05	+
Aug. 31, 1928	3,629,042	53,116+	1.40	+
July 31, 1928	3,570,927	66,082—	1.81	+
June 30, 1928	3,637,009	220,187+	6.45	+
May 31, 1928	3,416,822	455,311—	11.70	—
Apr. 30, 1928	3,872,133	463,073—	10.70	—
Mar. 31, 1928	4,335,206	62,983—	1.43	—
Feb. 29, 1928	4,398,189	122,242+	2.80	+
Jan. 31, 1928	4,275,947	303,073+	7.62	+
Dec. 31, 1927	3,972,874	518,430+	15.00	+
Nov. 30, 1927	3,454,444	113,404+	3.39	+
Oct. 31, 1927	3,341,040	192,921+	6.10	+
Sept. 30, 1927	3,148,113	47,924—	1.49	—
Aug. 31, 1927	3,196,037	54,023+	1.70	+
July 31, 1927	3,142,014	88,768+	2.80	+
June 30, 1927	3,053,246	2,305+	0.075	+
May 31, 1927	3,050,941	405,191—	11.70	—
Apr. 30, 1927	3,456,132	97,008—	2.72	—
Mar. 31, 1927	3,553,140	43,979—	1.22	—
Feb. 28, 1927	3,597,119	203,058—	5.34	—
Jan. 31, 1927	3,800,177	160,792—	4.50	—

New Code Becomes Law

The governor of Pennsylvania has signed the bill enacting the new state building code for Pennsylvania which substantially incorporates the standard specifications of the American Institute of Steel Construction, New York, for structural steel. The new code will govern building in cities of the first class in Pennsylvania.

Sheets

Third Quarter Books Opened by Some Mills with New Classifications for Blue Annealed

THE new plan of quoting blue annealed sheets, as announced by Inland Steel Co., has been adopted by several other makers, and it is reported as favored generally in the industry. Under this plan blue annealed will have two bases, Nos. 9 and 10 for light blue annealed plates, and Nos. 13 for blue annealed sheets. Autobody sheet price may be advanced.

SHEET PRICES, PAGE 1347

Chicago, May 14.—Inland Steel Co. has announced a new plan of quoting blue annealed sheets, using No. 13 gage as a base. The new prices are named for third quarter. Under this classification Nos. 8, 9, 10, 11 and 12 gages of blue annealed sheets are grouped as light plates, blue annealed. No. 9 and No. 10 gages for light plates, blue annealed, are the base gages for the new prices. The differentials from the base light plate gages are unchanged except for No. 12 gage, which is advanced 5 cents.

Under the blue annealed sheet designation, No. 13 gage, the base gage, is quoted at 2.45c, an advance of 5 cents; No. 14 gage, 2.50c, an advance of 10 cents; No. 15 gage, 2.55c, an advance of 5 cents; and No. 16 gage, 2.60c, or 10 cents up. The quotations named are f.o.b., Indiana Harbor, Chicago delivered prices being $1 a ton above mill quotations. The full schedule of mill prices for third quarter are as follows:

LIGHT PLATES, BLUE ANNEALED
At Mill

Gage	
No. 8	2.25c
Nos. 9 and 10	Base
No. 11	2.35c
No. 12	2.40c

BLUE ANNEALED SHEETS
At Mill

No. 13	Base
No. 14	2.50c
No. 15	2.55c
No. 16	2.60c

The changes in differentials on blue annealed sheets have been due to strip sheet competition. The heavier gages of blue annealed sheets, which will be classified as light plates, are removed from the "trouble zone" of blue annealed sheet classification, and it is pointed out that any weakness due to competition from strip sheets should not affect the lighter gages of blue annealed sheets under the new arrangement, but strip sheets would be competing with the new blue annealed light plate groupings, or heavy gages.

For third quarter sheet steel sales, the Inland company will use the same prices on box annealed black sheets and galvanized sheets as obtained during the second quarter. Mill prices for black sheets, No. 24 gage, have been 3.05c, and No. 24 gage galvanized sheets are 3.80c, with prices $1 a ton higher for delivery in the Chicago switching district. Sheet mills in the district have fairly good order books, backlogs extending six to seven weeks. Orders are well diversified.

Philadelphia, May 14.—The sheet market reflects an easier situation. Galvanized can be had in three to four weeks, and blue and black in three to five. Prices are unchanged. The trade expects the dual basing method on blue annealed will be applied generally at an early date.

Pittsburgh, May 14.—Little change is noted in the rate of specifications for sheets although some signs of a tapering off in automotive requirements are beginning to appear. The aggregate of specifications and new business is below the peak March rate. Operations for the district, which declined to around 90 per cent a week ago because of lack of adequate sheet bar supply, now are between 95 and 100 per cent. Autobody material generally has been steady at 4.10c, Pittsburgh, except in occasional instances of shading in the Detroit market. The price situation on other grades is described as the most satisfactory this year. Current prices are 2.95c, Pittsburgh, for sheet mill black, 3.00c for tin mill black, 3.70c for galvanized, and 2.20c for blue annealed.

The Empire Steel Corp., Sharon Steel Hoop Co., and Republic Iron & Steel Co. have adopted the new plan of classifying blue annealed sheets as announced by the Inland Steel Co., and also the equivalent prices for third quarter.

The American Rolling Mill Co. looks with favor on the plan, believes it is logical, will study it and probaby adopt it.

Buffalo, May 14.—Selling of full finished sheets for third quarter continues heavy. Makers are accepting orders at 4.365c, Buffalo. Black sheet orders are being entered at 3.215c, Buffalo, and galvanized at 3.965c.

Youngstown, O., May 14.—Continued pressure from automotive producers for coverage on autobody sheets for third quarter makes it more urgent that mills announce a third quarter price. Indications point strongly to a $2 advance, making the quotation 4.20c, Pittsburgh. While no increase is anticipated on other grades, the present trend of the market indicates to producers that third quarter prices can be maintained at 2.95c for black, 2.20c for blue annealed and 3.70c for galvanized.

Although reports from other dis-

(*Concluded on Page* 1363)

Structural Shapes

Shape Activity Less Vigorous Than in March-April—Few Large Units Placed and Pending—Prices Firm—May Go Higher

WHILE shape awards have not resumed their March-April pace, several attractive jobs were let. Included are a 6000-ton hotel at New York, a 3000-ton automobile plant at Long Beach, Calif., and a 2400-ton building at Milwaukee. Buffalo's new city hall will take 8000 tons. The Crane tower building at Chicago will probably involve 50,000 tons; Seattle's new hotel requires 5000 tons and an office building at Barrington, Ill., will necessitate the purchase of 2000 tons. Queensboro bridge, New York, needs 3000 tons additional and a bank at Albany calls for 2500 tons. Inquiries therefore are fair, but some of the vigor has gone out of the market in the past few weeks. Plain material is firm at 1.95c, Pittsburgh and an advance is expected.

STRUCTURAL SHAPE PRICES, PAGE 1347

New York, May 14.—Structural demand is moderate, with the placing of a 6000-ton hotel on Fifth avenue outstanding. The situation is unsettled due to a lockout tomorrow of 75,000 electrical workers as a result of a controversy between the Building Trades Employers association and the Building Trades council. A temporary injunction may avert this.

The proposed 5-day work schedule of nonunion structural workers in the employ of members of the Structural Steel Board of Trade, is in no way affected by the recent labor developments.

Structural bookings in the metropolitan district in April declined sharply from March, amounting to 37,256 tons. This compares with 72,033 tons in March and 28,214 tons in April, 1928. The total is exclusive of bridges, piers and subway work.

Shapes are steady at 2.195c to 2.245c, New York.

Boston, May 14.—Developments brought but little change in the fabricating line last week. A 600-ton medical building was awarded and one taking 500 tons is pending.

Philadelphia, May 14.—Mills operate at high rates but structural deliveries range from one to three weeks. Large tonnages are being shipped from this territory to other districts. Numerous inquiries are current here from Chicago. Prices are unchanged at 2.00c to 2.11c, base, delivered Philadelphia, with lower figures applying on desirable tonnages.

Pittsburgh, May 14.—Specifications for plain structural material have shown but little variation in the last 30 days, although demand has been termed satisfactory since early in the year. Business generally is confined to outlying districts since, although fabricators in this territory are figuring on a fair volume of business, awards have been slow and restricted largely to small lots. Inquiry expands slowly. Plain shapes are steady at 1.95c, Pittsburgh.

Buffalo, May 14.—City hall plans as finally approved call for an 8000-ton building. Fort Pitt Bridge Works was awarded 1010 tons for a bridge and a 1700-ton school job went to McClintic-Marshall Co.

Cleveland, May 14.—Structural inquiries are fewer and awards have shrunk. H. K. Ferguson Co., local general contractor, placed 500 tons each for two buildings in Indianapolis and Charleston, W. Va. Aronberg-Fried Co., general contractor, will take action tomorrow on 600 tons for the locomotive repair sheds for Cleveland Union Terminal Co. American Fork & Hoe Co. job at Geneva, O., is being refigured. The Superior avenue station for the New York Central and Nickel Plate roads went to National Iron & Wire Co. Possibly the largest job pending locally is the Newburg substation for the Cleveland Electric Illuminating Co., about 500 tons. Mills report specifications still active. The 1.95c, Pittsburgh, price is firm.

Chicago, May 14.—Despite some easing in tight deliveries on bars and plates, shipments of plain structural material are being further lengthened. Mills have extended shipments to 10 and 11 weeks, from the 7 to 8-week basis prevailing until recently. From 6000 to 7000 tons in new structural inquiry has come out in this territory and in the northwest. It is estimated that the proposed 75-story Crane tower will require 40,000 to 50,000 tons. Prices to miscellaneous buyers are on the basis of 2.05c to 2.10c, Chicago, but 2.10c has been maximum.

Awards Compared

	Tons
Awards this week	**32,501**
Awards last week	**26,099**
Awards two weeks ago	**71,432**
Awards this week in 1928	**31,544**
Average weekly awards, 1928	**39,082**
Average weekly awards, 1929	**41,810**
Total awards to date, 1928	**754,271**
Total awards to date, 1929	**836,219**

CONTRACTS PLACED

6000 tons, Pierre hotel, Sixty-first street and fifth avenue, New York, to American Bridge Co.

3000 tons, plant, Ford Motor Co., Long Beach, Calif., to McClintic-Marshall Co.

2400 tons, building, Milwaukee Gas Light Co., Milwaukee, to Worden-Allen Co.

2000 tons, office building, Ninth and Broadway, Los Angeles, to McClintic-Marshall Co.

1900 tons, garage and office building for J. M. Nix, San Antonio, Tex., to Orange Car & Steel Co.

1700 tons, Burgard school, Buffalo, to McClintic-Marshall Co.

1500 tons, bridge spans, Wabash railroad, Danville, Ill., to American Bridge Co.

1300 tons, 11-story warehouse, Pearl street, New York, to Hedden Iron Construction Co.

1010 tons, Cazenovia bridge, Buffalo, to Fort Pitt Bridge Works.

1000 tons, school, Front and Duncannon streets, Philadelphia, to McClintic-Marshall Co.

990 tons, commerce school for City College of New York, West Twenty-third street, New York, to Dreier Iron Works.

700 tons, 12-story apartment hotel, 13 Waverly place, New York, to Easton Structural Steel Co.

600 tons, Boston, medical building for Boston City hospital, Boston, to New England Structural Co.

565 tons, 8-story building, White Plains, N. Y., to Just Engineering Co.

540 tons, store for Kress Co., Tampa, Fla., to Ingalls Iron Works Co. Inc.

500 tons, plant addition, Marmon Motor Car Co., Indianapolis, to Massillon Bridge & Structural Co., through H. K. Ferguson Co., Cleveland, engineer.

500 tons, addition, Westvaco Chlorine Products Inc., Charleston, W. Va., to Massillon Bridge & Structural Co., through H. K. Ferguson Co., Cleveland, general contractor.

465 tons, school, San Francisco, to Dyer Bros.

450 tons, building, Chicago City bank, Chicago, to American Bridge Co.

416 tons, eight 116-foot girders, for bridges on Central of Georgia railroad, to Virginia Bridge & Iron Co.

400 tons, plant, Walker Bros., Spring Mill, Pa., to Shoemaker Bridge Co.

400 tons, asbestos pipe building, Johns-Manville Inc., Waukegan, Ill., to American Bridge Co.

380 tons, building, Raub Supply Co., Overbrook, Pa., to Shoemaker Bridge Co., through Walter Cantley, who last week was listed as the fabricator.

365 tons, building, Century Cement Corp., Rosendale, N. Y., to Pittsburgh Bridge & Iron Works.

300 tons, fieldhouse, State college, Pullman, Wash., to Minneapolis Steel & Machinery Co.

300 tons, garage, Seventy-seventh street, New York, to A. E. Norton Inc.

300 tons, addition, Keystone Aircraft Corp., Bristol, Pa., to Belmont Iron Works.

300 tons, building, Pennsylvania Glass Sand Co., Hancock, W. Va., to Belmont Iron Works.

300 tons, Duke university, Durham, N. C., to Southern Engineering Co.

300 tons, Aiken avenue bridge, Pittsburgh, to Independent Bridge Co.

275 tons, hangar No. 5, Oakland, Calif., to Herrick Iron Works.

260 tons, office building addition, Sansome street, San Francisco, to Judson-Pacific Co.

250 tons, Chesapeake & Ohio bridge in West Virginia, to American Bridge Co.

250 tons, 4-story garage, 433 East Seventy-first street, New York, to Krues Bros.

200 tons, power plant, Honolulu to Moore Dry Dock Co., San Francisco, through Dwight P. Robinson Inc., Philadelphia.

190 tons, East Ninth street bridge, Cleveland, for Nickel Plate railroad, to American Bridge Co.

150 tons, Eads subway system, St. Louis, to Mississippi Valley Structural Steel Co.
125 tons, hospital, 225th street and Baychester avenue, New York, to unnamed fabricator.
100 tons, miscellaneous work, including 60 tons of hoppers and columns for the Pavrite Co., Chicago, to Vierling Steel Works.
100 tons, Montour Run viaduct, Pennsylvania, to Fort Pitt Bridge Works, through Rust Engineering Co.
100 tons, Superior avenue station, Cleveland, New York Central and Nickel Plate railroads, to National Iron & Wire Co., through Sam Emerson & Co., general contractors.

CONTRACTS PENDING

8000 tons, Buffalo city hall; bids about June 17. Dietel & Wade, Buffalo, architects.
7000 tons, building, Patterson estate, Chicago; revived.
5000 tons, hotel, Canadian National railway, Vancouver. General contract to E. J. Ryan Contracting Co. Ltd. Bids in.
5000 tons, hotel, Vancouver, B. C.; bids opened.
3000 tons, additional work on Queensboro bridge New York.
2500 tons, National Savings bank, Albany, N. Y., pending; previously noted as involving an unstated tonnage.
2000 tons, office building, Jewel Tea Co., Barrington, Ill.
1100 tons, hotel, Philadelphia; general contract to the Foundation Co.
800 tons, building, Y. M. C. A. Paterson, N. J. General contract to John W. Ferguson, that city.
700 tons, building for Rock Hill Printing Co., Rock Hill, S. C.
700 tons, telephone exchange building, Evansville, Ind.
550 tons, bridge, Pennsylvania railroad, Lemoyne, Pa.
500 tons, plant addition for National Casket Co., Long Island City, N. Y.
500 tons, highway bridge work for South Dakota highway commission.
500 tons, bridges, Colorado highway commission.
500 tons, Lying-in hospital, Boston.
500 tons, substation, Cleveland Electric Illuminating Co., Newburgh, O. Bids in.
300 tons, interstate bridge between Niagara, Wis., and Iron Mountain, Mich.; Chernus Construction Co., 205 Metropolitan Bank building, Minneapolis, low bidder at $96,113.
300 tons, state highway bridges in Massachusetts.

Fluorspar

Duty on Acid and Enamel Spar May Be Increased

FLUORSPAR PRICES, PAGE 1348

New York, May 14.—Provisions of the new tariff bill now before the house at Washington provide a modification of duties on fluorspar. At present the rate on fluorspar containing 93 per cent or less calcium fluoride is $8.40 per gross ton, while the rate on spar containing more than 93 per cent calcium fluoride is $5.60. The $8.40 rate set forth in the new tariff bill is intended to apply to all grades, hence the projected rate would bring no change on metallurgical spar but an increase on acid and enamel spar of $2.80 per gross ton.

A heavy volume of selling features the market in imported fluorspar. Most of this involves 85 and 5 per cent grade for metallurgical purposes, the minimum prices as a rule being $20.15 gross ton, duty paid. High-grade foreign spar also is selling in fair volume at $36.50 per net ton, duty paid, powdered and packed in 221-pound bags, with a minimum of 96 per cent calcium fluoride and a maximum of 2 per cent silica.

Concrete Bars

Small Lots Are Active—1100-Ton Warehouse Let at Boston—Prices Steadier

SMALL lots rule in practically every market section. An 1100-ton warehouse in Boston was awarded to the Jones & Laughlin Steel Corp. Bids will go in on 1000 tons for a city hall at Buffalo. A 1225-ton bridge at Seattle has been postponed and bids were rejected on a 900-ton job there. Billet bar prices stiffen at Chicago and are more steady elsewhere.

REINFORCING BAR PRICES, PAGE 1347

Chicago, May 14.—Reinforcing bar activity is marked by an unusual volume of small-lot business, much of this being under 100 tons in individual lots. Rail steel bar prices are unsteady, but billet bar quotations have strengthened. The minimum named for the latter is 2.40c for 18 tons and over, with $5 added for lots of five to 18 tons, and $10 for lots under five tons, making the quotations 2.40c, 2.65c and 2.90c, respectively.

Boston, May 14.—Concrete bars for the warehouse for the First National Stores, 1100 tons, the largest lot ordered here in some time, went to the Jones & Laughlin Steel Corp. This will be a direct mill shipment.

Pittsburgh, May 14.—Specifications to mills for reinforcing concrete bars are steady, showing little change from a month ago. Local sellers are closing only on small jobs. Inquiry is slightly more active and a fair volume of work is pending. The market is steady at 2.30c, Pittsburgh, for cut lengths and 2.05c for stock lengths.

Buffalo, May 14.—About 1000 tons of reinforcing bars will be needed for the new city hall, here. New inquiry for mesh for road work listed this week totals 700 tons. Steelworks report greatly increased demand for concrete bars and production is at the high point of the year.

Cleveland, May 14.—Awards are scarce in concrete bars. Sam W. Emerson Co. has let bars for Superior avenue station, New York Central-Nickel Plate railroads, to Paterson-Leitch Co. General contract for the Cuyahoga county bridge, Sumpes road, Parma, O., went to Freeman & Jones Inc. Pending items include 300 tons, East Ninth street bridge; 240 tons, Henry street culvert extension; 160 tons, locomotive sheds, Cleveland Union Terminal Co.; 150 tons, Cleveland Electric Illuminating Co. substation at Newburg, O., and 100 tons for Midland bank.

Awards Compared

	Tons
Awards this week	2,700
Awards last week	9,218
Awards two weeks ago	6,509
Awards this week in 1928	5,150
Average weekly awards, 1928	6,189
Average weekly awards, 1929	6,330
Total awards to date, 1928	148,887
Total awards to date, 1929	126,610

CONTRACTS PLACED

1100 tons, First National Stores warehouse, Somerville, Mass., to Jones & Laughlin Steel Corp. for direct mill shipment.
500 tons, building, Coca Cola Bottling Co., Polk street and Crawford avenue, Chicago, to Calumet Steel Co., previously reported as going to another fabricator.
300 tons, New York highway work, Glens Falls, N. Y., to Concrete Steel Co.
200 tons, state roadway, Raritan, N. J., to Igoe Bros.
180 tons, apartment, Second and Gramercy place, Los Angeles, to unstated interest.
175 tons, apartment building, Lawrence avenue, Chicago, to Inland Steel Co.
150 tons, revised, store and office building, Klee Bros. & Co., Milwaukee and Cicero avenues, Chicago, to Concrete Engineering Co., previously reported to unstated fabricator.
150 tons, apartment, Chicago, to Calumet Steel Co., through Callner Construction Co.
150 tons, packing plant, San Jose, Calif., to Concrete Engineering Co.
125 tons, Montour Run viaduct, Pennsylvania; to Rust Engineering Co.
120 tons, Schoonmaker department store, Beacon, N. Y., to Smith-Stewart Co., Newburg, N. Y.
100 tons, miscellaneous work, including Superior avenue station, New York Central and Nickel Plate railroads, to Paterson-Leitch Co., through Sam W. Emerson & Co.
100 tons, printing plant, Minna street, San Francisco, to Pacific Coast Steel Co.

CONTRACTS PENDING

1225 tons, West Garfield street bridge, Seattle. Bids postponed.
1000 tons, Buffalo city hall; bids about June 17. Dietel & Wade, Buffalo, architects.
255 tons, (mesh), for Wilson-Porter Center, N. Y., highway; bids at Albany, N. Y., May 17.
245 tons, (mesh), Byron-Holley, N. Y., highway, Canty, O'Neill and Candell, Buffalo, low bidder.
231 tons, paving in Siskiyou county, Sacramento, Calif. Bids opened.
195 tons, (mesh), Macedon-Ontario Center highway, William Bailey Corp., Rochester, N. Y., low bidder.
150 tons, substation at Newburg, O., for Cleveland Electric Illuminating Co., Cleveland. Bids being taken.
100 tons, Midland bank, Cleveland. Bids in.
100 tons, Cuyahoga county bridge, Sumpes road, Parma, O. General contract to Freeman & Jones Inc.

Bosch Profits Larger

American Bosch Magneto Corp., Springfield, Mass., reports for the first quarter net profit, after depreciation and other charges, but before

federal taxes, of $255,076 or $1.25 a share on 207,399 shares of no par common stock, against a net profit of $71,276 for the first quarter, 1928.

Iron Ore

Vessel Movement to June 1 More Than Double That in 1928

IRON ORE PRICES, PAGE 1348

Cleveland, May 14.—Interest in the Lake Superior iron trade is centered in shipments, as the market is quiet, with large users covered for the season. The vessel shipments this month are moving forward at a rate equivalent to 9,000,000 tons for May, compared with 5,300,000 tons in May last year. This with the heavy April total will place the movement up to June 1 this year at more than twice the comparable figure in 1928. The Lake Superior Iron Ore association reports receipts at Lake Erie ports for April, shipments therefrom in the month, and dock balance May 1 as follows:

Port	Receipts	Shipments	Dock balance May 1, 1929
Buffalo			
No. Tonawanda			
Port Colborne	67,277	9,103	1,833
Erie	41,546	43,678	58,203
Conneaut	159,666	355,329	1,131,197
Ashtabula	332,390	570,373	1,068,830
Fairport	48,786	62,259	182,126
Cleveland	336,195	468,033	777,272
Lorain	88,257	54,971	59,980
Huron	49,378	60,492	332,661
Toledo	67,430	52,418	34,438
Total	1,190,925	1,676,656	3,646,546
Comparative Total 1 Yr. previous		397,246	5,182,388

Receipts at other than Lake Erie ports for April were as follows:

Port	Receipts
Detroit	
Indiana Harbor	122,658
Gary	124,644
South Chicago	136,131
Milwaukee	
Boyne City	
East Jordan	
Saulte Ste. Marie, Ontario	3,127
Point Edward, Ontario	
Total	386,560
Comparative total 1 year previous	5,886

New York, May 14.—Supply of foreign iron ore has become so tight that American furnaces which usually buy are having difficulty in getting satisfactory offers from importers. It now is difficult to get foreign iron ores of desirable quality for foundry and basic iron at lower than 11½ to 12 cents per unit, alongside docks at Atlantic ports. Several high-grade brands are not available at any price. There is some talk about reviving operations at one or two eastern iron ore mines.

At a recent meeting of the Cleveland chapter of the American Society for Steel Treating the following officers were elected for 1929-1930: Chairman, W. H. White, Atlas division, Ludlum Steel Co.; Vice chairman, J. S. Ayling, the Case Hardening Service Co.; and secretary-treasurer, W. E. Benninghoff, Cleveland Electric Illuminating Co.

Rails, Cars

Car Buying Slows Up—7240 Units Pending—Roads Award Business to Own Shops

PROGRESS in car lettings at best is slow. About 7000 freight and 240 passenger cars are considered actively pending, but action is postponed on the larger individual inquiries included. Several small awards are noted, Pennsylvania placing 1000 with its own shops. Chesapeake & Ohio is taking bids on quarterly steel needs. Rail buying is quiet but accessory ordering is sustained.

RAILROAD TRACK PRICES, PAGE 1348

New York, May 14.—Pennsylvania placed 1000 cars with its own shops. New York, New Haven & Hartford issued specifications on 109 coaches, multiple unit trailer cars and miscellaneous passenger equipment.

Full returns indicate the placing of 8205 freight cars in April. This is the smallest monthly total so far this year and brings the aggregate for the first four months up to 49,328, as compared with 23,381 in the corresponding period of last year. Further comparison follow:

	1929	1928	1927	1926
Jan.	13,196	4,160	14,710	8,830
Feb.	15,944	10,220	5,960	12,895
March	12,023	2,958	4,955	8,895
April	8,205	6,043	3,675	4,615
Total (4 mos.)	49,328	23,381	29,300	35,235
April	.....	6,043	3,675	4,615
May	.....	2,531	5,425	4,448
June	.....	2,422	7,440	4,285
July	.....	582	2,295	1,265
Aug.	.....	677	1,181	152
Sept.	.....	1,378	682	3,335
Oct.	.....	2,853	886	2,840
Nov.	.....	6,140	1,189	3,925
Dec.	.....	4,799	14,897	8,990
Total	.....	44,763	63,295	64,475

Locomotive buying includes 15 for Canadian National.

Pittsburgh, May 14.—Chesapeake & Ohio is taking bids on its quarterly requirements of track material in addition to other steel products. An inquiry is pending for several hundred tons of track material for the Connellsville extension of the Pittsburgh & West Virginia railroad. Specifications to mills for track fastenings are well maintained and business now on books is expected to last well into June. Light rails are quiet.

Cleveland, May 14.—Occasional small lot rail orders are placed by railroads in this territory. These secondary orders rarely exceed 500 or 600 tons and many are smaller. Nickel Plate has awarded four locomotives to Lima Locomotive Works.

Chicago, May 14.—Secondary rail buying is quiet but additional tonnage is taking form. Rail mill operations are virtually at capacity, the rate varying slightly due to semifinished steel shortages. Orders for sales of track fastenings in the week just closed totaled 2500 to 3000 tons. Sales for the past month or more have held to that weekly average.

It is expected some of the Nickel Plate cars will require steel from Chicago district mills. Northern Pacific is expected to build in its own shops the 100 stock cars on its inquiry for some time. That road has purchased 500 gondolas, 500 automobile cars, 200 flats, and the remaining 100 stock cars will close its recent 1300-car inquiry. Chicago & Alton is asking bids for rebuilding 130 box cars. Formal inquiry for 1000 to 2500 freight cars for Chicago & North Western has been postponed, it is stated.

CAR ORDERS PLACED

Pennsylvania, 1000 50-ton, steel wood-lined box cars, to its own shops at Altoona, Pa.

Southern Pacific, 21 gasoline-electric rail motor cars: 12 to Pullman Car & Mfg. Corp., 7 to J. G. Brill Co. and 2 to Standard Steel Car Co. Also 15 chair cars to Pullman Car & Mfg. Corp.

Tucson, Cornelia & Gilda Bend railroad, subsidiary of New Cornelia Copper Co., 50 ore cars to Koppel Industrial Car & Equipment Co.

LOCOMOTIVE ORDERS PLACED

Canadian National, 15 locomotives, including 12 switch engines, to Baldwin Locomotive Works.

Chicago & Illinois Midland, two locomotives, to Baldwin Locomotive Works.

Elgin, Joliet & Eastern, six locomotives, to Baldwin Locomotive Works.

Nickel Plate, four Hudson 4-6-4 type locomotives and tenders, to Lima Locomotive Works. Locomotives weigh 317,000 pounds and tenders 208,000 pounds each.

CAR ORDERS PENDING

Atlanta & West Point, eight steel mail and baggage cars.

Chicago & Alton, bids being asked for rebuilding of 130 box cars.

Chicago & North Western, five horse cars.

Fruit Growers Express, 500 underframes in addition to 150 previously noted.

Inspiration Consolidated Copper Co., four air dump cars.

New York, New Haven & Hartford, 70 passenger cars, three multiple unit motor passenger cars and six multiple unit trailer cars, previously noted as authorized and now definitely up for bids. Also 24 smoking cars, six combination smoker-baggage, and 12 steel underframes for wooden baggage cars.

Northern Pacific, 100 stock cars to be built in own shops.

Pennsylvania, 50 caboose cars.

LOCOMOTIVE ORDERS PENDING

Litchfield & Madison, one to three locomotives.

Tennessee Central, four locomotives.

The Boiler Service & Supply Co. Ltd., Toronto, Ont., has been incorporated to manufacture and deal in furnaces, stoves, boilers, etc.

Strip

Extended Delivery Holds Specifications at High Mark—Capacity Operation is Rule

NARROW widths of strip steel are more in demand than the wider, though the entire range is active. Mills are producing at capacity but are unable to reduce backlogs sufficiently to improve deliveries. Rumors are heard of higher prices for third quarter, though books have not been opened for that delivery. Automotive needs are not markedly less.

STRIP PRICES, PAGE 1348

Pittsburgh, May 14.—Strip steel demand is well maintained despite the fact specifications have shown a gradual decline since the March peak. The slowness with which demand has declined is reflected in the fact that despite capacity operations for a number of months extended delivery still prevails on practically all material. On hot strip mills give four weeks, with some sizes taking even longer. Four to five weeks is the general minimum on cold rolled. Automotive manufacturers have not markedly curtailed new commitments, with demand from the builders of lower priced cars holding to its recent peak. Some slight decline, however, is noted from other interests. Operations continue at capacity. Producers have not yet opened books for third quarter although in view of higher prices of semifinished material there are some intimations that advanced schedules will be introduced. The market is steady at 1.90c and 2.00c for the two sizes of hot strip and 2.75c to 2.85c for cold rolled material.

Worcester, Mass., May 14—Cold rolled strip specifications hold up well on narrow widths. There has been some drop in the wider sizes, but backlogs continue large with buyers stressing delivery. Prices are firm.

Cleveland, May 14.—Makers of hot and cold strips contemplate opening their books for third quarter within two or three weeks. The delivery situation is forcing earlier action than usual. Hot rolled is from four to 12 weeks deferred, narrow sizes taking the longer period and cold strips are shipped within four or five weeks. Demand is well sustained, all consuming lines being active. Prices for both grades are firm.

Chicago, May 14.—Average cold rolled strip backlogs are estimated at about seven weeks. It is expected some producers will name third quarter prices shortly and open books. Buyers have put out some feelers for third quarter protection. A range of 2.75c to 2.85c, Pittsburgh-Cleveland, prevailing on cold rolled.

Youngstown, O., May 14.—Demand for strip steel, both hot and cold, is beyond expectations. Deliveries on the narrower widths are 10 to 12 weeks deferred and on the wider widths 6 to 8 weeks. Prices are firm. There is some talk of an advance in prices for third quarter. No third quarter inquiry has yet appeared. Operations now are being carried on at full capacity.

To promote the aesthetic quality in steel bridge construction, the American Institute of Steel Construction is offering a first prize of $500, a second prize of $250 and a third prize of $100 for the three best designs submitted by students in the department of architecture, Beaux-Arts Institute of Design, New York.

Cold Finished Steel

Specifications Holding at Steady Rate —Shipments Are Larger

COLD FINISHED PRICES, PAGE 1348

Pittsburgh, May 14.—Cold-finished bar producers fail to note any marked change in specifications this month. Shipments continue slightly in excess of incoming business but producers still have a fair volume of business on books for remainder of the quarter. Despite reports of slackening in automotive operations, demand from these interests is well sustained, particularly from manufacturers of lower priced cars. Cold-finished bars are steady at 2.30c, Pittsburgh.

Cleveland, May 14.—Automotive requirements for June in cold finished bars show a slight shrinkage from May. Various other consuming lines including machinery appear to be maintaining their April-May ratios. Makers report that there is no price interference and the quotation, 2.35c, Cleveland, remains firm.

Wire

Activity Increases in All Lines —Jobbers Move Stocks Steadily —Mills at High Rate

NEED for wire and its products in agricultural areas is stimulating the market and bringing demand to jobbers as well as manufacturers. Road construction calls for much welded mesh. Fencing is also a large factor. Some restriction is noted in districts where weather has been continuously adverse. Prices are steady and show no sign of weakening or of shading.

WIRE PRICES, PAGE 1348

Pittsburgh, May 14.—A gradual improvement in demand for fencing materials holds total business in wire products so far this month slightly above the rate for April. Nails continue slow although slightly more active than earlier in the year, while demand for manufacturers' wire continues active. Turnover of jobbers' stocks is slightly spotty, restricted in some districts by adverse weather conditions. The market is steady at 2.50c to 2.60c for plain wire and $2.65 to $2.75 for wire nails.

Worcester, Mass., May 14.—Demand for specialties and manufacturers' wire continues brisk with specifications holding well up to the April rate at steady prices, 2.75c, Worcester base, on plain wire to dealers. There has been a slight decline on new buying of fencing which has been seasonally active. Shipments are heavy and mill stocks are not large.

Buffalo, May 14.—Wire mills are operating at 85 to 90 per cent. Demand for welded mesh for road construction is opening up in large volume. Wire prices have shown unusual firmness this quarter. Automotive manufacturers continue to send forward large specifications each week.

Cleveland, May 14.—Orders for wire utilized by nut and bolt makers are numerous. Other grades of manufacturers' wire also are active. Wire nails move steadily, although individual orders are not large. Prices are firm, nails being $2.65 and $2.75 per keg.

Chicago, May 14.—Agricultural wire products, including woven fencing, nails, and barbed wire, are making further gains. Jobbers and dealers report good distribution to country areas, with individual orders in small lots. May orders usually are slow, but specifications this month are up to those of the past two or three years. Quotations to large jobbers are steady at 2.55c, Chicago or western mills, for bright plain wire, and $2.70 for wire nails.

Thomas F. Kelly, Brooklyn, N. Y., was elected president of the New York chapter of the Institute of Scrap Iron & Steel Inc., at a meeting of the chapter on May 7 at the Pennsylvania hotel, New York.

Nonferrous Metals

Demand Continues Light But Shipments Against Old Orders Are Heavy—Prices Hold Unusually Steady

Prices of the Week, Cents a Pound

	Copper: Electro delivered	Copper: Lake delivered	Copper: Casting refinery	Straits Tin: New York Spot	Straits Tin: Futures	Lead: New York	Lead: East St. Louis	Zinc: St. Louis	98-99% Aluminum	Spot Antimony	Ingot Nickel
May 8	18.00	18.07½	17.50	44.25	44.37½	7.00	6.80	6.60	23.90	9.00	35.00
May 9	18.00	18.07½	17.50	44.37½	44.50	7.00	6.80	6.57½	23.90	9.00	35.00
May 10	18.00	18.07½	17.50	44.55	44.70	7.00	6.80	6.57½	23.90	9.00	35.00
May 13	18.00	18.07½	17.50	44.25	44.37½	7.00	6.80	6.60	23.90	9.00	35.00
May 14	18.00	18.07½	17.90	44.25	44.37½	7.00	6.80	6.60	23.90	8.93¾	35.00

NEW YORK, May 14.—Buying of nonferrous metals continues light but shipments against old orders remain large. Advanced shipment is being asked on copper. Prices held unusually steady the past week.

The scrap copper market continues to strengthen. Differentials under new metal are narrowing.

New buying of mill products has been light but the mills are operating at a high rate. Backlogs are being cut down.

Copper—Shipments in April continue remarkably close to the record level established in March. Production increased and stocks of refined metal gained about 4500 tons. Total stocks of blister and refined copper increased nearly 17,000 tons to about the level of a year ago. Refined stocks, however, are 15,000 tons lighter than on May 1 a year ago. Domestic shipments so far this year have surpassed the movement in the first four months of any year. Export shipments, on the other hand, have fallen behind those of the corresponding four months a year ago. It is believed export buying will be forced into the market on a larger scale soon. The statistics as a whole are the weakest that have appeared in a long time, but it is generally believed they will make little difference with the immediate price situation. The reason for this is that producers still have large order books ahead and are not likely to push the market. Indications point to larger domestic shipments in May than in April.

Zinc—Prime western prices have been uncertain in the past week on account of light buying and varied prices. Publication of April statistics was followed by sales as high as 6.65c, East St. Louis. Small sellers, however, became anxious and business was done at less than 6.60c, with rumors of as low as 6.50c. In the past day or two the market has appeared firmer again. Zinc ore is unchanged at $44 a ton.

Tin—After the market had firmed up for about a week, prices became easy again on account of slack buying. Consumption continues extremely large.

Lead—Buying has been light, but users appear to be not very fully covered for June needs.

Aluminum—New buying is light. Shipments continue large and the market is in a strong position. Prices are unchanged.—*Daily Metal Trade.*

Tractors Exceeding 1928

Tractor demand is running 50 per cent ahead of 1928 sales and last year's estimated production of 250,000 machines is expected to be exceeded in 1929, according to M. W. Anderson, president of the United Tractor & Equipment Corp.

Mill Products

Base price cents per pound f.o.b. mill, except where otherwise specified

SHEETS	
Yellow brass (high)	23.25
Copper, hot rolled	27.75
Lead, full sheets (cut ¼c more)	10.00
Zinc sheet (100-pound base)	$10.25
Zinc strip (100-pound base)	$9.25
Aluminum, flat sheets, up to 10 gage, 3 to 72 inches wide	31.30
SEAMLESS TUBE	
Yellow brass (high)	28.25
Copper	29.25
RODS	
Yellow brass (high, full turnings)	21.25
Naval brass	24.00
WIRE	
Copper	19.87½
Yellow brass (high)	23.75

Old Metals

Dealers' buying prices, cents per pound

HEAVY RED BRASS	
New York	12.00 to 12.50
Chicago	11.50-nominal
Cleveland	12.25 to 12.50
HEAVY YELLOW BRASS	
Cleveland	8.75 to 9.00
ZINC	
New York	3.50 to 3.75
Cleveland	3.25 to 3.50
HEAVY COPPER AND WIRE	
New York	14.00 to 14.25
Boston	13.50 to 14.00
Chicago	12.50-nominal
Cleveland	13.00 to 13.50
RED BRASS BORINGS	
New York	11.00 to 11.50
YELLOW BRASS TUBING	
Cleveland	8.50 to 9.00
LIGHT COPPER	
New York	12.00 to 12.25
Chicago	11.50-nominal
Cleveland	12.00 to 12.50
LIGHT BRASS	
Boston	8.00 to 8.50
Chicago	7.50-nominal
Cleveland	6.75 to 7.00
ALUMINUM	
Clippings, Cleveland	17.50 to 18.00
Borings, Cleveland	9.50 to 10.00
Cast, Cleveland	12.50 to 13.00
Cast, Boston	10.50 to 11.00

Secondary Metals

Remelt aluminum No. 12	17.00 to 17.50
Brass ingot, 85-5-5-5	16.25 to 16.50

Coke By-Products

Shipments Hold Down Makers' Stocks —Prices Are Unchanged

New York, May 14.—Good demand for light oil distillates continues to keep stocks at producers' plants at low ebb. Demand for toluol is actually in excess of supply, but commercial xylol and solvent naphtha serve to minimize this situation. Lacquer manufacturers are using heavy quantities of all three of these distillates. Pure and 90 per cent benzols are moving well, with export buying taking up the surplus over domestic requirements. Prices are unchanged at 23 cents for each.

Dullness dominates the sulphate of ammonia market, as fertilizer manufacturers have about finished specifying against contracts. With foreign buying as far from promising, it appears as if there will be little resumption in buying before the latter part of June or possibly July. At that time the fertilizer industry should again enter the market for requirements for the following season.

Naphthalene is unchanged, but with some letup in demand.

Coke Oven By-Products

Per Gallon at Producers' Plant in Tank Lots

	Spot
Pure Benzol	$0.23
90 per cent benzol	0.23
Toluol	0.40
Solvent naphtha	0.30
Commercial xylol	0.30
Per Pound at Producers' Plants in 250-Pound Drums	
Phenol	0.17
Per Pound at Producers' Plants	
Naphthalene flakes	0.05½ to 0.06½
Naphthalene balls	0.06½ to 0.07½
Per 100 Pounds Delivered	
Sulphate of ammonia	$2.20 to 2.30

Mercury $123 to $123.50

New York, May 14.—Quicksilver is unchanged, with prices mostly $123 but some asking prices as high as $123.50 a flask.

Warehouse

Eastern Jobbers Receive Large Sheet Orders—Shapes Active Most Sections—May Tonnage May Exceed April's—Prices Steady

AS MILLS fail to catch up measurably on deliveries, buyers continue to depend upon jobbers to supply their needs. Sheets and structurals move well in practically all sections and in New York mill size orders have been filed with warehouses. Local conditions serve as deterrents in St. Louis. Concrete bars advance in Buffalo.

New York—Jobbing demand continues brisk, with prices generally steady. Structurals and sheets are among the wanted items. The sold-up condition of the mills is particularly reflected in demand for sheets. Several unusually large orders have been placed which normally, it is believed, would have been sent direct to producers.

Pittsburgh—Steady demand is being encountered by jobbers. Sales so far this month compare favorably with the rate a month ago. Buying is diversified. Sheets are active and although the market for narrow sizes of strip steel is not large, the difficulty in obtaining prompt shipment from mills is passing a fair volume to jobbers. Prices generally are steady. Slight shading is noted on only a small portion of business.

Cincinnati—Demand for warehouse offerings continues to be good as outside work continues active. Prices remain firm. April tonnage totaled high and indications for May are that order books will show a like good volume.

Cleveland—Sales so far by jobbers this month exceed the April rate. Demand applies practically to everything carried, deferred mill deliveries still being a factor. Sheets are active and prices, particularly on galvanized, show firmness.

Buffalo—Warehouses have advanced reinforcing bars $1 per ton to 2.95c, Buffalo. May sales of iron and steel by Buffalo warehouses continue the pace established last month. Demand for all materials is good, but sheets and shapes are moving especially well. Reinforcing bars are improving. At the present rate second quarter sales will come close to establishing a record for recent years.

St. Louis—Demand for ferrous steel materials out of stock developed some irregularity during the past several days, and was less satisfactory than last month. Automobile shops are active and take liberal tonnages.

Philadelphia—Jobbers here booked 12 to 15 per cent more tonnage during the first four months this year than in the same period of 1928. Prices are firm, although some talk of an advance in bars, bands and hoops continues to be heard.

Warehouse Quotations in Cents Per Pound at Leading Market Centers

STEEL BARS

Baltimore	3.25c
Boston	3.265c
Buffalo	3.30c
Chicago	3.00c
Cincinnati	3.30c
Cleveland	3.00c
Detroit	3.00c
Ft. Worth	3.75c
Houston	3.00c
Los Angeles	3.30c
New York †††‡	3.25c
Philadelphia*	2.80c
Pittsburgh	2.90c
Portland	3.00c
San Francisco	3.15c
Seattle	3.00c
St. Louis	3.15c
St. Paul	3.25c
Tulsa	3.75c to 4.04c

IRON BARS

Baltimore	3.25c
Boston	3.265c
Buffalo	3.30c
Chicago	3.00c
Cincinnati	3.30c
Detroit	3.00c
Ft. Worth	3.75c
New York††	2.80c to 3.24c
Philadelphia*	2.80c
St. Louis	3.15c
Tulsa	3.75c to 4.04c

REINFORCING BARS

Baltimore	3.31c
Boston	3.265c to 3.50c
Buffalo	2.95c
Cincinnati	3.15c
Cleveland	2.25c to 2.44c
Detroit	2.30c to 3.00c
Ft. Worth	3.50c
Houston	3.00c
Los Angeles cl.	2.65c
Los Angeles, lcl.	3.00c
New York	2.90c to 3.30c
Philadelphia	2.75c to 3.10c
Pittsburgh	2.90c to 3.175c
San Francisco cl.	2.00c
San Francisco lcl.	2.25c
Seattle	3.00c
St. Louis	3.15c
Tulsa	3.75c to 4.00c
Youngstown	2.30c to 2.60c

STRUCTURAL SHAPES

Baltimore	3.25c
Boston	3.365c
Buffalo	3.40c
Chicago	3.10c
Cincinnati	3.40c
Cleveland	3.00c
Detroit	3.10c
Ft. Worth	4.00c
Houston	3.25c
Los Angeles	3.30c
New York†††‡	3.25c to 3.30c
Philadelphia*	2.70c
Pittsburgh	3.00c
Portland	3.00c
San Francisco	3.15c
Seattle	3.00c
St. Louis	3.25c
St. Paul	3.35c
Tulsa	3.75c to 4.14c

PLATES

Baltimore	3.25c
Boston	3.365c
Buffalo	3.40c
Chicago	3.10c
Cincinnati	3.40c
Cleveland, ¼-in. and thicker	3.00c
Cleve., 3/16-in.	3.20c
Detroit	3.10c
Detroit, 3/16-in.	3.30c
Ft. Worth	4.00c
Houston	3.00c
Los Angeles	3.30c
New York‡‡	3.30c
Philadelphia*	2.70c
Pittsburgh	3.00c
Portland	3.00c
San Francisco	3.15c
Seattle	3.00c
St. Louis	3.25c
St. Paul	3.35c
Tulsa	3.75c to 4.14c

NO. 10 BLUE ANNEALED

Baltimore	3.60c
Boston 3/16-in.	3.915c
Buffalo	3.50c
Chicago	3.35c
Cincinnati	3.45c
Cleveland	3.25c
Detroit	3.35c
Ft. Worth	4.50c
Houston	3.90c
Los Angeles	4.00c
New York‡‡	3.90c
Portland	3.75c
Philadelphia*†	3.25c
Pittsburgh**	3.35c to 3.45c
San Francisco	3.80c
Seattle	4.00c
St. Louis	3.45c
St. Paul	3.75c
Tulsa	4.20c to 4.34c

NO. 24 BLACK SHEETS

Baltimore	3.50c to 4.00c
Boston	4.85c
Buffalo	4.20c
Chicago	4.05c
Cincinnati	4.05c
Cleveland***	3.90c
Detroit	3.95c
Ft. Worth	4.70c
Los Angeles	4.90c
New York	4.00c
Philadelphia*†	4.10c
Pittsburgh**	3.85c
Portland	4.90c
San Francisco	4.90c
Seattle	5.00c
St. Louis	4.25c
St. Paul	3.89c
Tulsa	4.34c

NO. 24 GALVANIZED SHEETS

Baltimore	4.30c to 4.50c
Boston	5.60c
Buffalo	4.70c to 4.85c
Chicago	4.90c
Cincinnati	4.90c
Cleveland***	4.75c
Detroit	4.75c
Ft. Worth	5.50c
Houston	5.30c
Los Angeles	5.30c
New York	4.75c
Philadelphia*†	4.85c
Pittsburgh**	4.85c to 4.95c
Portland	5.50c
San Francisco	5.30c
Seattle	5.50c
St. Louis	5.10c
St. Paul	4.68c
Tulsa	5.10c to 5.35c

BANDS

Baltimore	4.00c
Boston	4.015c to 5.00c
Buffalo	3.65c
Chicago	3.20c
Cincinnati	3.50c
Cleveland	3.25c to 3.65c
Detroit, 3/16-in. and lighter	3.30c
Ft. Worth	4.25c
Houston	3.65c
Los Angeles	4.15c
New York‡‡	3.75c
Philadelphia*	3.15c
Pittsburgh	3.25c
Portland	4.00c
San Francisco	3.75c
Seattle	4.00c
St. Paul	3.50c
Tulsa	4.50c to 4.69c

HOOPS

Baltimore	4.00c
Boston	5.50c to 6.00c
Buffalo	4.05c
Chicago	3.75c
Cincinnati	4.05c
Cleveland	3.25c to 3.65c
Detroit, No. 14 and lighter	3.80c
New York‡‡	4.25c
Philadelphia*	3.40c
Pittsburgh	4.25c
Seattle	5.00c
St. Paul	4.00c

COLD FINISHED STEEL

	Rounds, hexagons,	Flats, squares
Baltimore (c)	3.50c	(a) 4.00c
Boston	3.55c	4.05c
Buffalo	3.95c	4.45c
Chicago	3.60c	4.10c
Cincinnati	3.85c	4.35c
Cleveland	3.65c	4.15c
Detroit	3.85c	4.35c
Los Angeles (a)	4.50c	.....
New York	3.60c	4.10c
Philadelphia*	3.60c	4.10c
Pittsburgh	3.70c	4.20c
Portland (a)	4.50c	.....
San Fran. (a)	4.25c	.....
Seattle (a)	5.00c	.....
St. Paul (a)	3.85c	.....
Tulsa	4.64c	5.14c

(a) Rounds only.

COLD ROLLED STRIP

Boston, 0.100-inch, 500 pound lots	5.30c
Buffalo	5.85c
Chicago (b)	6.10c
Cincinnati	7.15c
Cleveland (b)	5.95c
Detroit	5.80c
New York	5.15c
Philadelphia (c)	5.15c

(b) Net base, straightening, cutting, boxing 1 ton or more.

(c) Plus mill, size and quantity extras.

SWEDISH IRON AND STEEL

New York duty paid

Hollow drill steel	13.00c
Iron bars, round	6.10c
Iron bars, flats and squares	6.50c

*Plus quantity differentials. ‡‡Minus quantity differentials. †† Domestic bars. **Less than 25 sheets. *†50 or more bundles. ***Less 0.15c where more than 10 bundles are ordered at once for delivery at one time.

Pacific Coast

Most Sales in Small Lots—Important Tonnages Pending—Prices Are Firm

SMALL lots rule in sales, making a comfortable aggregate, with some large tonnages in prospect. Prices are firm and little competition from imported steel is being experienced. Pig iron imports are lower than usual. Steel mills are operating steadily and find ample outlet for their products. Action on a bridge at Seattle, requiring 1200 tons, has been postponed.

San Francisco, May 11.—(*By Air Mail*)—Movement of iron and steel products on the Pacific coast is holding up well and awards this week were the heaviest for some products in over two months. Bids were called for 5000 tons of shapes for a hotel in Vancouver, B. C., and 7000 tons was awarded in the southern part of California.

Foreign importations during February were as follows for the major items:

	Tons Feb. 1929	Tons Jan. 1929	Tons Feb. 1928
Coke	3980	3739	3176
Cast Iron Pipe	2687	1783	1843
Tubular Products	2375	944	1343

Pig iron imports were considerably less than in either February of last year or January of this year, and imports of steel ingots were larger.

Pig Iron and Coke

Demand for foundry pig iron and coke continues restricted to small lots and no large inquiries are in the market. Prices are unchanged.

Coast Pig Iron Prices

Utah basic	$25.00 to 26.00
Utah foundry	25.00 to 26.00
*German	24.25
*Indian	25.00 to 26.00

*C.i.f. duty paid.

Bars, Plates and Shapes

Awards of concrete bars this week aggregated 2998 tons, including 150 tons for a packing plant in San Jose, Calif., booked by the Concrete Engineering Co., and 250 tons for an office building in Yakima, Wash., booked by the Northwest Steel Rolling Mills. Bids were opened on 2550 tons for the Cushman dam project, Tacoma. An award is expected within the next few days on 455 tons for a warehouse in Oakland. Prices on out-of-stock material in the San Francisco district continue at 2.30c, base, on carload lots. Merchant bar material is firm at 2.35c c.i.f.

The East Bay municipal utility district, Oakland, placed 575 tons and 150 tons of plates with the Western Pipe & Steel Co. and the Steel Tank & Pipe Co., respectively, for a 30 to 48-inch welded steel pipe line. The Chicago Bridge & Iron Co. took 125 tons for a tank and tower at Orange, Calif. Everett, Wash., will call for bids shortly on 9000 tons for a 52-inch steel or concrete pipe line. Bids open May 14 on 575 tons of 24-inch, ⅜-inch plate, electric welded steel pipe for Los Angeles. Prices continue unchanged at 2.35c c.i.f.

Shape awards totaled 8545 tons and were the heaviest in over nine weeks. McClintic-Marshall Co. booked 3000 tons for the Ford plant at Long Beach and 2000 tons for an office building at Ninth and Broadway, Los Angeles. Judson-Pacific Co. took 260 tons for an office building in San Francisco and Dyer Bros. booked 465 tons for a school in the same city. Pending business is of fair proportions. Plain shapes are firm at 2.35c c.i.f.

Other Finished Material

Bethlehem Steel Co. booked 344 tons of 75 to 128-pound tee and girder rails, 12,660 tie plates, 103 kegs of track spikes and other accessories for Long Beach, Calif., while the Racor Pacific Frog & Switch Co. were awarded 13 switches and frogs. The Oakland port commission placed 275 tons of 90-pound rails and 100 tons of accessories with the United Commercial Co., San Francisco.

Demand for cast iron pipe has improved and awards this week totaled 1845 tons, against 420 tons last week. Klamath Falls, Oreg., and Southgate, Calif., placed 679 tons and 499 tons respectively. The United States Pipe & Foundry Co. took 254 tons for Arroyo Grande, Calif. Pending business calls for more than 5500 tons and new inquiries include 1123 tons for Silver City, N. Mex., and 700 tons for Oceanside, Calif. Little activity is noted in oil country goods, but standard pipe is moving better. Los Angeles is asking for bids on 575 tons of 24-inch lapwelded pipe.

Seattle Building Much

Seattle, May 8.—Turnover in iron and steel in the Pacific Northwest is normal or better. Tonnage awards this week have been in small lots but the aggregate of business is satisfactory and several large projects are to be awarded within a short time.

Prices remain firm and little complaint is heard about cutting or the competition of foreign materials. Wholesalers state their sales are well maintained, particularly improvement in this respect being noted in Portland territory.

Local steel mills are operating steadily. New work this week has been in lots of less than 100 tons but the number of contracts placed has been considerable. Seattle city council has postponed award of contract for the Garfield street bridge involving about 1200 tons of concrete steel. Contract for the West Spokane street viaduct, 275 tons of bars, is pending. Mill prices of merchant bars are unchanged at 2.35c, concrete bars at 2.30c.

Mill prices of plates are holding firm at 2.35c. General Petroleum Co. is asking bids for plant extensions involving 115 tons of plates. City of Seattle is preparing plans for a $1,000,000 48-inch steel pipe line, more than 4½ miles in length, involving a large tonnage of plates.

Local fabricating plants have booked no contracts this week involving more than 100 tons. It is reported that the Minneapolis Steel & Machinery Co. is low bidder on 300 tons involved in the field house at Pullman, Wash., general contract to Colonial Building Co., Spokane. E. J. Ryan Contracting Co. Ltd., has the contract for the Canadian National railroad's proposed hotel at Vancouver, B. C., and bids have been received for 5000 tons of structurals involved.

Finished Materials

Wholesale jobbers report an active turnover, mostly out of stock, although there is also some mill business. Sheets are in better demand and a larger volume is moving. Jobbers have not changed prices on sheets and are absorbing the increased cost at mills. Price schedules are unchanged.

Pig Iron

(*Concluded from Page* 1349)

ter. The St. Louis Gas & Coke Corp. booked 1450 tons. Inquiry pending totals about 11,500 tons.

Birmingham, Ala., May 14.—A little more iron has been moving recently in this territory but the market is quiet. Sellers claim to be holding to $15.50, base, Birmingham, though reports still are heard of concession of 50 cents in outside territory. A large quantity of foundry iron has been placed on furnace yards, and further curtailment of production is scheduled for the present month, two stacks to be blown out.

Toronto, Ont., May 14.—Pig iron sales are confined to small tonnages for spot delivery. Prices are firm in the Toronto and Montreal markets.

Foundry Co. Earns More

Campbell, Wyant & Cannon Foundry Co., Muskegon, Mich., in the quarter ended March 31, showed a net profit of $475,600 after all charges, including depreciation and federal taxes, equal to $1.51 a share earned on 315,000 shares of capital stock, against $435,064 in the first quarter last year.

Important Paragraphs of Metals Tariff

(*Continued from Page* 1336)

to a duty of two-tenths of 1 cent per pound in addition to the rate imposed on the wire of which it is made; telegraph, telephone, and other wires and cables composed of iron, steel, or other metal (except gold, silver, or platinum), covered with or composed in part of cotton, jute, silk, enamel, lacquer, rubber, paper, compound, or other material, with or without metal covering, 35 per centum ad valorem; wire rope, 40 per centum ad valorem; wire strand, 35 per centum ad valorem; spinning and twisting ring travelers, 35 per centum ad valorem; wire heddles and healds, 25 cents per thousand and 30 per centum ad valorem.

Par. 317. All galvanized wire not specially provided for, not larger than twenty one-hundredths and not smaller than eight one-hundredths of one inch in diameter, of the kind commonly used for fencing purposes, galvanized wire fencing composed of wires not larger than twenty one-hundredths and not smaller than eight one-hundredths of one inch in diameter; and all wire commonly used for baling hay or other commodities, one-half of 1 cent per pound.

Par. 318. Woven-wire cloth: Gauze, fabric, or screen, made of wire composed of steel, brass, copper, bronze, or any other metal or alloy, not specially provided for, with meshes not finer than thirty wires to the lineal inch in warp or filling, 25 per centum ad valorem; with meshes finer than thirty and not finer than ninety wires to the lineal inch in warp or filling, 40 per centum ad valorem; with meshes finer than ninety wires to the lineal inch in warp or filling, 50 per centum ad valorem. Fourdrinier wires and cylinder wires, suitable for use in paper-making machines (whether or not parts of or fitted or attached to such machines), and woven-wire cloth suitable for use in the manufacture of Fourdrinier wires or cylinder wires, 55 per centum ad valorem.

Par. 319. Iron or steel anchors and parts thereof; forgings of iron or steel, or of combined iron and steel, not machined, tooled, or otherwise advanced in condition by any process or operation subsequent to the forging process, not specially provided for, 25 per centum ad valorem.

Par. 321. Antifriction balls and rollers, metal balls and rollers commonly used in ball or roller bearings, metal ball or roller bearings, and parts thereof, whether finished or unfinished, for whatever use intended, 10 cents per pound and 45 per centum ad valorem.

Par. 322. Railway fishplates or splice bars, and tie plates, made of iron or steel, one-fourth of 1 cent per pound; rail braces, and all other railway bars made of iron or steel, and railway bars made in part of steel, T rails, and punched iron or steel flat rails, one-tenth of 1 cent per pound.

Par. 323. Axles and parts thereof, axle bars, axle blanks, and forgings for axles, of iron or steel, without reference to the stage or state of manufacture, not specially provided for, valued at not more than 6 cents per pound, six-tenths of 1 cent per pound: Provided, That when iron or steel axles are imported fitted in wheels, or parts of wheels, of iron or steel, they shall be dutiable at the same rate as the wheels in which they are fitted.

Par. 324. Wheels for railway purposes, and parts thereof, of iron or steel, and steel-tired wheels for railway purposes, wholly or partly finished, and iron or steel locomotive, car, or other railway tires and parts thereof, wholly or partly manufactured, 1 cent per pound: Provided, That when wheels for railway purposes, or parts thereof, of iron or steel, are imported with iron or steel axles fitted in them, the wheels and axles together shall be dutiable at the same rate as is provided for the wheels when imported separately.

Par. 325. Jewelers' and other anvils weighing less than five pounds each, 45 per centum ad valorem; all other anvils of iron or steel, or of iron and steel combined, by whatever process made, or in whatever stage of manufacture, 3 cents per pound.

Par. 326. Blacksmiths' hammers, tongs, and sledges, track tools, wedges, and crowbars, of iron or steel, 1⅜ cents per pound.

Par 327. Cast-iron pipe of every description, and cast-iron fittings for cast-iron pipe, 30 per centum ad valorem; cast-iron andirons, plates, stove plates, sadirons, tailors' irons, hatters' irons, but not including electric irons, and castings and vessels wholly of cast iron, including all castings of iron or cast-iron plates which have been chiseled, drilled, machined, or otherwise advanced in condition by processes or operations subsequent to the casting process but not made up into articles, or parts thereof, or finished machine parts; castings of malleable iron not specially provided for; cast hollow ware, coated, glazed, or tinned, but not including enameled ware and hollow ware containing electrical elements, 20 per centum ad valorem.

Par. 328. Lap-welded, butt-welded, seamed, or jointed iron or steel tubes, pipes, flues, and stays, not thinner than sixty-five one-thousandths of one inch, if not less than three-eighths of one inch in diameter, three-fourths of 1 cent per pound; if less than three-eighths and not less than one-fourth of one inch in diameter, 1¼ cents per pound; if less than one-fourth of one inch in diameter, 1¾ cents per pound: Provided, That no tubes, pipes, flues, or stays made of charcoal iron shall be subject to a less rate of duty than 1¼ cents per pound; cylindrical and tubular tanks or vessels, for holding gas, liquids, or other material, whether full or empty; welded cylindrical furnaces, tubes and flues made from plate metal, whether corrugated, ribbed, or otherwise reinforced against collapsing pressure, and all other finished or unfinished iron or steel tubes not specially provided for, 25 per centum ad valorem; flexible metal tubing or hose, whether covered with wire or other material, including any appliances or attachments affixed thereto, not specially provided for, and rigid iron or steel tubes or pipes prepared and lined or coated in any manner suitable for use as conduits for electrical conductors, 30 per centum ad valorem.

Par. 329. Chain and chains of all kinds, made of iron or steel, not less than three-fourths of one inch in diameter, seven-eighths of 1 cent per pound; less than three-fourths and not less than three-eighths of one inch in diameter, 1¼ cents per pound; less than three-eighths and not less than five-sixteenths of one inch in diameter, 2½ cents per pound; less than five-sixteenths of one inch in diameter, 4 cents per pound; chains of iron or steel, used for the transmission of power, of not more than two-inch pitch and containing more than three parts per pitch, and parts thereof, finished or unfinished, 40 per centum ad valorem; all other chains used for the transmission of power, and parts thereof, 35 per centum ad valorem; anchor or stud link chain, two inches or more in diameter, 1½ cents per pound; less than two inches in diameter, cents per pound: Provided, That all articles manufactured wholly or in chief value of chain shall not be subject to a lower rate of duty than that imposed upon the chain of which it is made, or of which chain is the component material of chief value.

Par. 330. Nuts, nut blanks, and washers, of wrought iron or steel, six-tenths of 1 cent per pound; bolts, with or without threads or nuts, and bolt blanks, of iron or steel, 1 cent per pound; spiral nut locks, and lock washers, if iron or steel, 35 per centum ad valorem.

Par. 331. Cut nails and cut spikes, of iron or steel, exceeding two inches in length, four-tenths of 1 cent per pound; cut tacks and brads, hobnails and cut nails, of iron or steel, not exceeding two inches in length, 15 per centum ad valorem; horseshoe nails, and other iron or steel nails, not specially provided for, 1½ cents per pound; upholsterers' nails, chair glides, and thumb tacks, of two or more pieces of iron or steel, finished or unfinished, 3 cents per pound; nails, spikes, tacks, brads, and staples, made of iron or steel wire, not less than one inch in length nor smaller than sixty-five one-thousandths of one inch in diameter, four-tenths of 1 cent per pound; less than one inch in length and smaller than sixty-five one-thousandths of one inch in diameter, three-fourths of 1 cent per pound; spikes, tacks, brads and staples, not specially provided for, six-tenths of 1 cent per pound.

Par. 332. Rivets, studs, and steel points, lathed, machined, or brightened, and rivets or studs for nonskidding automobile tires, 30 per centum ad valorem; rivets of iron or steel, not specially provided for, 1 cent per pound.

Par. 333. Common horse, mule, or ox shoes, of wrought iron or steel, one-fifth of 1 cent per pound; horse, mule or ox shoes, punched, drilled or tapped, of wrought iron or steel, for use with adjustable wrought-iron or steel skid calks, and solid drop-forged calked shoes of wrought iron or steel, 1 cent per pound.

Par. 334. Steel wool, 10 cents per pound; steel shavings, 5 cents per pound; and in addition thereto, on all the foregoing, 30 per centum ad valorem.

Par. 335. Grit, shot, and sand of iron or steel, in any form, three-fourths of 1 cent per pound.

Par. 336. Corset clasps, corset steels, and dress steels, whether plain or covered with cotton, silk, or other material, 35 per centum ad valorem.

Par. 337. Card clothing not actually and permanently fitted to and attached to carding machines or to parts thereof at the time of importation, when manufactured with round iron or untempered round steel wire, 20 per centum ad valorem; when manufactured with tempered round steel wire, or with plated wire, or other than round iron or steel wire, or with felt face, wool face, or rubber-face cloth containing wool 45 per centum ad valorem.

Par. 338. Screws, commonly called wood screws, of iron or steel, 25 per centum ad valorem.

Par. 340. Crosscut saws, mill saws, pit and drag saws circular saws, steel band saws, finished or further advanced than tempered and polished, hand, back, and all other saws, not specially provided for, 20 per centum ad valorem; jewelers' or piercing saws 40 cents per gross.

Par. 341. Steel plates, stereotype plates, electrotype plates, halftone plates, photogravure plates, photo-engraved plates, and plates of other materials, engraved or otherwise prepared for printing and plates of iron or steel engraved or fashioned for use in the production of designs, patterns, or impressions on glass in the process of manufacturing plate or other glass, 25 per centum ad valorem; lithographic plates of stone or other material engraved, drawn, or prepared, 25 per centum ad valorem.

Par. 342. Umbrella and parasol ribs and stretchers, composed wholly or in chief value of iron, steel, or other metal, in frames or otherwise, and tubes for umbrellas, wholly or partly finished, 60 per centum ad valorem.

Par. 343. Needles for knitting, sewing, shoe, or embroidery machines of every description, not specially provided for, $1.15 per thousand and 40 per centum ad valorem; spring-beard needles and crochet needles or hooks, $1.50 per thousand and 50 per centum ad valorem; latch needles, $2 per thousand and 60 per centum ad valorem; tape, knitting, and all other needles, not specially provided for, bodkins of metal, and needle cases or needle books furnished with

(*Concluded on Page* 1366)

Sheet Demand Sustained

(*Concluded from Page* 1355)

tricts indicate a slight lessening in automotive demand, no evidence of this character has come to the larger producers here.

Specifications for galvanized sheets are not as heavy as last month but shipments are heavier. Heavy demand is reported for light gage blue annealed sheets.

Cleveland, May 14.—Sheet tonnage continues to pile up on makers' books, with correspondingly increased delivery datings. On or before June 1, it is expected that third quarter prices will be announced and while an advance is expected in autobody sheets of $2, other grades probably will firm up to the levels quoted at present. Where business on the books goes over into the third quarter, in some cases several weeks, it has been accepted at levels to be decided upon later, except where it represents second quarter quotas of customers which have to be shipped at mill convenience. Shortage of semifinished steel is distressing. Necessity for mill repairs and overhauling is increasingly acute so that a letdown in the specifying rate in the June-July period would be welcomed by mill operators generally.

St. Louis, May 14.—Sheet specifications are holding up in fair volume. Recent orders for blue annealed are ahead of shipments. Prices are steady.

Fred C. Harris Dies

Fred C. Harris, 68, for many years general superintendent of the Zenith Furnace Co., West Duluth, Minn., died May 3. He was born at Paradox, N. Y., and at 14 began to make iron at a forge in Schroon, N. Y. He later worked for about 10 years at the Crown Point magnetite iron mines and furnaces. For a time he was employed at the American Steel & Wire Co.'s Edith furnace at Pittsburgh, and then became general foreman of the Central blast furnaces of that company at Cleveland, when it became part of the United States Steel Corp. Several years ago he went with the Zenith Furnace Co., where he since had remained.

Purchases Strip Steel Plant at Warren

Warren, O., May 14.—E. Theodore Sproull has purchased outright the J. W. Brainard Steel Co., here. He will be president and treasurer of the reorganized company to be known as the Brainard Steel Corp. With him will be associated as vice president and secretary W. J. Adamson, formerly steel sales manager of the Acme Steel Co. of Chicago. The J. W. Brainard Steel Co. manufactures electro-galvanized strip specialties, patented hoops and similar products. These same products will be continued under the new management and further specialties will be added as experimental work now in process is completed.

J. W. Brainard will remove the Brainard Rivet Co. from the plant of the J. W. Brainard Steel Co. The rivet company was separated from the steel company about a year ago and this separate identity will be maintained.

Mr. Sproull's resignation as vice president, secretary and treasurer of the National Association of Flat-Rolled Steel Manufacturers has been accepted and no action as yet has been taken to fill the vacancy. George H. Charls will continue as president of the association and chairman of the Sheet Steel Trade Extension committee, assuming in addition the duties of treasurer. A. M. Flora will continue as vice president and assume the duties of secretary of the association and also continue as secretary of the Trade Extension committee.

St. Louis Selected for Aeronautic Meeting

Over forty technical papers will be presented at the Aeronautic meeting sponsored by the American Society of Mechanical Engineers at St. Louis, May 27-30. A novel airplane exhibit will be held at Lambert, St. Louis Flying field where 125 American airplane manufacturers have been invited to group their planes for demonstration and inspection. A special airship program is scheduled at Scott field, near St. Louis, May 28, and at the banquet, May 29, awards will be made for meritorious contributions to aeronautic science. The final event of the meeting will be the Gardner cup air races scheduled for May 30.

Ceramic Tour Nears End

Sailing from New York May 18, 40 of England's leading ceramists will return home after visiting many of the large refractory and ceramic plants in the United States and Canada. Included in the itinerary of the trip in this country, which began April 28, were New York, New Jersey, Washington, D. C., Missouri, Pennsylvania, Maryland, and Ohio. The English group was here for the summer excursion meeting of the American Ceramic society. Among the collaborating hosts were the American Refractories institute and Missouri Refractories association.

Tractor Sales Heavy

Washington, May 14.—Shipments of electric industrial trucks and tractors in April were the highest on record, except for March, which was a new record, according to figures gathered by the department of commerce. Monthly comparisons follow:

	Domestic Tractors	All other Types	Exports
1928			
April	9	212	6
(4 mos)	47	400	49
May	8	93	13
June	6	96	14
July	5	87	15
August	5	85	6
September	11	102	5
October	5	109	20
November	9	117	6
December	10	126	17
1928 Total	106	1,215	145
1929			
January	4	129	19
February	9	121	3
March	14	186	10
April	12	169	13
(4 mos.)	40	606	45

Enameled Ware Is Up

Washington, May 14.—Shipments of enameled ware during March recovered sharply after the decline in February, according to statistics gathered by the department of commerce. Monthly comparisons follow:

In dozens

1928	Total	White	Gray	Colored
March	442,689	200,010	152,895	89,784
(3 mo.)	1,135,408	534,976	416,516	183,916
April	351,034	143,470	123,808	83,756
May	348,661	158,458	116,541	73,662
June	299,078	141,486	95,959	61,633
July	277,684	125,653	108,584	43,447
Aug.	358,811	164,580	134,191	60,040
Sept.	352,484	172,127	130,337	50,020
Oct.	417,387	190,424	166,078	60,885
Nov.	328,875	139,197	123,850	65,828
Dec.	324,445	132,422	136,170	55,853
Tot., 1928	4,191,761	1,900,275	1,552,034	739,452
1929				
Jan.*	427,871	199,589	138,480	89,802
Feb.	390,577	178,589	131,206	80,782
March	449,425	183,191	166,368	99,866
(3 mo.)	1,267,873	561,369	436,054	270,450

Continues Stock Plan

Stockholders of the International Harvester Co., Chicago, have voted to adopt a plan for the sale of common stock to employes. All stock authorized for sale to employes under the stock ownership and investment plan of 1924 has been subscribed for. The new plan is a continuing one.

General Motors Denies Monroe Rumors

Detroit, May 14.—Officials of General Motors Corp. deny reports that the construction of two blast furnaces, with commensurate open hearth and finishing capacity, is contemplated near Monroe, Mich. Engineers have been reported figuring on a plant adjacent to the site of the proposed Newton Steel Co. sheet mills. Considerable acreage in the vicinity is said to be owned by the Fisher Brothers, identified with the Fisher Body unit of General Motors. Last year it was reported that General Motors was planning on blast furnaces at Saginaw, Mich.

Some delay has been encountered in putting in foundations for the Newton mills on account of the swampy character of the soil.

Algoma Adds Capacity

Montreal, Que., May 14.—Directors of the Lake Superior Corp. have issued the following statement: Algoma Steel Corp., Sault Ste. Marie, Ont., has authorized important extensions and improvements. Both merchant mills are to be extended to double their capacity in bars and structural shapes, and adapt them to the needs of the automobile trade. They will be the first mills in Canada designed to roll alloy steels. The extensions and improvements referred to will mean the production of certain structural sections not now manufactured in Canada, but used by fabricators. Such increased production will reduce importations of such materials from the United States. Large expenditure on blast furnaces and open hearths will aso be made. The mill extensions will increase production of structural shapes from 7500 to 15,000 tons per month.

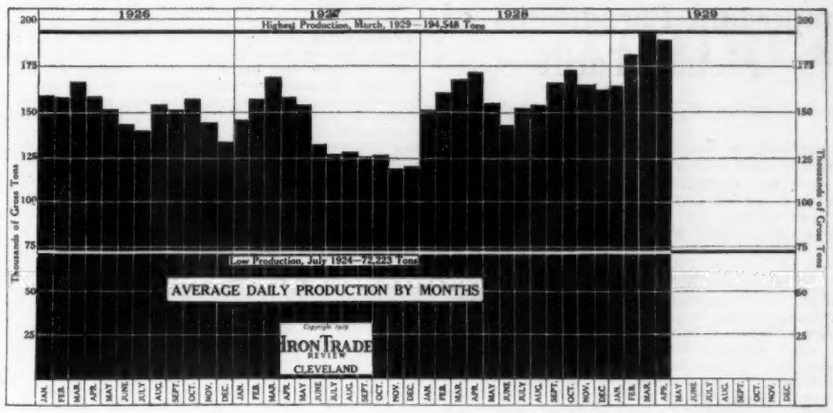
Chamber Picks Officers

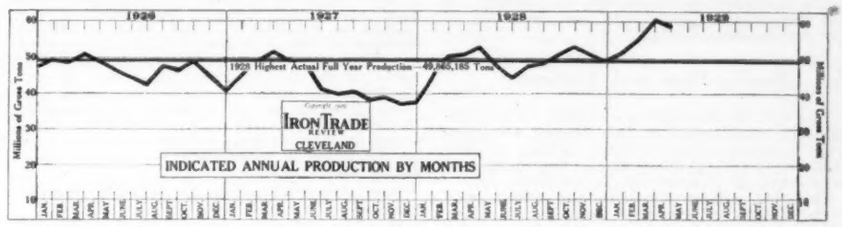
At the conclusion of the seventeenth annual meeting of the United States chamber of commerce, April 29 to May 3, the board of directors elected the following officers for the coming year: Chairman, Julius H. Barnes, New York; president, William Butterworth, Moline, Ill. (re-elected); vice presidents, Alfred J. Brosseau, New York (re-elected), Robert R. Ellis, Memphis, Tenn. (re-elected), W. Rufus Abbott, Chicago, Charles W. Lonsdale, Kansas City, Mo., and Paul Shoup, San Francisco (re-elected); and treasurer, John Joy Edson, Washington (re-elected).

Hardware Association To Meet in Washington

The most important topic to be considered at the annual convention of the American Steel and Heavy Hardware association at the Washington hotel, Washington, May 21-23, is a proposed schedule of uniform cutting charges for warehouses. For the past year a committee under the chairmanship of W. J. Holliday, W. J. Holliday & Co., Indianapolis, has been investigating this subject and has set up a schedule which it is believed will receive approval of the industry.

Among the addresses and speakers will be "Government and Business," by M. Markham Flannery, federal trade commission, Washington; "Simplified Practice and Better Net Profits," by R. M. Hudson, assistant director, bureau of standards, Washington; and "Taxation," by Oliver B. Surpless, Surpless, Dunn & Co. Inc., New York.





Making Improvements at Toledo Furnaces

The Toledo Furnace Co. has awarded to Arthur G. McKee & Co., engineers and contractors, Cleveland, a contract covering the design, furnishing and erection of central coke bins, coke screens, breeze handling equipment, weigh hoppers, bin bottoms and alterations to three larry cars in connection with the company's A and B blast furnaces at Toledo, O.

Steel Ingot Decrease Slight

PRODUCTION of open-hearth and bessemer steel ingots in April with a daily rate of 189,924 gross tons registered the first decline since activity started on the upgrade in January. According to the American Iron and Steel institute, which has just revised and adjusted its monthly production figures for 1928 and 1929 on the basis of final returns for 1928, the April daily rate fell 4624 tons, or 2.38 per cent, short of the 194,548 ton all-time record established in March. Despite the slight recession, the daily rates of the last three months have been higher than at any time in history. Total ingots made in April were 4,938,025 tons, as compared with 5,058,258 tons in March. Both months had 26 working days.

For the first four months of 1929, ingot output made a new record with 18,812,637 gross tons and an average daily rate of 182,647 tons. In the corresponding period of 1928, the total was 16,846,958 tons and the daily rate, 163,563 tons.

In revising and adjusting its figures for 1928, the institute found that the reporting companies made only 94.51 per cent of the total for the country, instead of 94.68 per cent, the ratio which obtained in 1927 and which was used as a basis or calculation in 1928 until the final figures became available.

With a production of 189,924 tons per day in April and 311 working days in the year, the indicated annual production was 59,150,000 tons. For March the rate was 60,500,000 tons. According to the institute's calculations, operations in April were at 96.84 per cent, against 99.20 per cent in March and 91.35 per cent in April, 1927. Annual capacity for 1929 is regarded as 60,990,810 tons of open-hearth and bessemer ingots.

Steel Ingot Production—1928-1929

94.51 Per Cent of Industry Reporting

Gross Tons

1928	Open-hearth	Bessemer	Monthly output companies reporting	Calculated monthly output all companies	Number of working days	Approximate daily output all companies	Per cent of operation
Jan.	3,273,294	498,691	3,771,985	3,990,902	26	153,496	81.42
Feb.	3,300,407	521,250	3,821,657	4,043,457	25	161,738	85.80
March	3,692,648	567,330	4,259,978	4,507,217	27	166,934	88.55
April	3,505,104	564,110	4,069,214	4,305,382	25	172,215	91.35
4 mos.	13,771,453	2,151,381	15,922,834	16,846,958	103	163,563	86.76
May	3,394,301	582,128	3,976,429	4,207,212	27	155,823	82.66
June	3,010,341	528,193	3,538,534	3,743,903	26	143,996	76.38
July	3,068,257	528,588	3,596,845	3,805,598	25	152,224	80.75
Aug.	3,379,625	569,771	3,949,396	4,178,610	27	154,763	82.10
Sept.	3,375,654	544,710	3,920,364	4,147,893	25	165,916	88.01
Oct.	3,795,800	599,098	4,394,898	4,649,968	27	172,221	91.36
Nov.	3,442,112	590,669	4,032,781	4,266,835	26	164,109	87.05
Dec.	3,301,114	496,679	3,797,793	4,018,208	25	160,728	85.26
Total	40,538,657	6,501,217	47,129,874	49,865,185	311	160,338	85.05
1929							
Jan.	3,694,218	549,616	4,243,834	4,490,354	27	166,309	84.80
Feb.	3,599,224	489,279	4,088,503	4,326,000	24	180,250	91.91
March	4,183,869	596,691	4,780,560	5,058,258	26	194,548	99.20
April	4,026,576	640,351	4,666,927	4,938,025	26	189,924	96.84
4 mos.	15,503,887	2,275,937	17,779,824	18,812,637	103	182,647	93.13

Figures exclude crucible and electric ingots. Operation percentages for 1929 are based on an annual open-hearth and bessemer steel ingot capacity of 58,627,910 tons as of Dec. 31, 1927; 1929 percentages based on capacity of 60,990,810 tons as of Dec. 31, 1928.

Important Paragraphs of Metals Tariff

(*Concluded from Page* 1363)

assortments of needles or combinations of needles and other articles 50 per centum ad valorem.

Par. 344—Cylindrical steel rolls ground and polished, valued at 25 cents per pound or over, 25 per centum ad valorem; any of the foregoing containing more than one-tenth of 1 per centum of vanadium, or more than two-tenth of 1 per centum of tungsten, molybdenum, or chromium, 40 per centum ad valorem.

Par. 345. Saddlery and harness hardware: Buckles, rings, snaps, bits, swivels, and all other articles of iron, steel, brass, composition, or other metal, not plated with gold or silver, commonly or commercially known as harness hardware, 35 per centum ad valorem; all articles of iron, steel, brass, composition, or other metal, not plated with gold or silver, commonly or commercially known as saddlery or riding bridle hardware, 50 per centum ad valorem; all the foregoing, if plated with gold or silver, 60 per centum ad valorem.

Hooks, Eyes and Fasteners

Par. 347. Hooks and eyes, wholly or in chief value of metal, whether loose, carded, or otherwise, including weight of cards, cartons, and immediate wrappings and labels, 4½ cents per pound and 25 per centum ad valorem.

Par. 348. Snap fasteners and clasps, and parts thereof, by whatever name known, or of whatever material composed, not plated with gold, silver, or platinum; all the foregoing valued at not more than $166 2/3 per hundred: If not mounted on tape, 55 per centum ad valorem; mounted on tape, including sew-on fasteners, 60 per centum ad valorem.

Par. 349. Metal trouser buttons (except steel) and nickel bar buttons, one-twelfth of 1 cent per line per gross; steel trouser buttons, one-fourth of 1 cent per line per gross; buttons of metal, not specially provided for, three-fourths of 1 cent per line per gross; and in addition thereto, on all the foregoing, 15 per centum ad valorem; metal buttons embossed with a design, device, pattern, or lettering, 45 per centum ad valorem: Provided, That the term "line" as used in this paragraph shall means the line button measure of one-fortieth of one inch.

Par. 350. Pins with solid heads, without ornamentation, including hair, safety, hat, bonnet, and shawl pins; and brass, copper, iron, steel, or other base metal pins, with heads of glass, paste, or fusible enamel; all the foregoing not plated with gold or silver, and not commonly known as jewelry, 35 per centum ad valorem.

Par. 351. Pens, not specially provided for, of plain or carbon steel, 15 cents per gross; wholly or in part of other metal, 18 cents per gross; and of the foregoing with nib and barrel in one piece, 20 cents per gross.

Par. 352. Twist and other drills, reamers, milling cutters, taps, dies, die heads, and cutting tools of all descriptions, and cutting edges or parts for use in such tools, composed of steel or substitutes for steel, all the foregoing, not specially provided for, containing more than one-tenth of 1 per centum of vanadium, or more than two-tenths of 1 per centum of tungsten, molybdenum, or chromium, 60 per centum ad valorem.

Par. 353. All articles suitable for producing, rectifying, modifying, controlling, or distributing electrical energy; electrical telegraph, telephone, signaling, radio, welding, ignition, wiring, therapeutic, and X-ray apparatus, instruments, and devices; and articles having as an essential feature an electrical element or device, such as electric motors, fans, locomotives, portable tools, furnaces, heaters, ovens, ranges, washing machines, refrigerators, and signs; all the foregoing, and parts thereof, finished or unfinished, wholly or in chief value of metal, and not specially provided for, 40 per centum ad valorem.

Par. 354. Penknives, pocketknives, clasp knives, pruning knives, budding knives, erasers, manicure knives, and all knives by whatever name known, including such as are denominatively mentioned in this Act, which have folding or other than fixed blades or attachments, valued at not more than 40 cents per dozen, 1 cent each and 50 per centum ad valorem; valued at more than 40 and not more than 50 cents per dozen; 5 cents each and 50 per centum ad valorem; valued at more than 50 cents and not more than $125 per dozen, 11 cents each and 55 per centum ad valorem; valued at more than $1.25 and not more than $3 per dozen, 18 cents each and 55 per centum ad valorem; valued at more than $3 and not more than $6 per dozen, 25 cents each and 50 per centum ad valorem; valued at more than $6 per dozen, 35 cents each and 55 per centum ad valorem; blades, handles, or other parts of any of the foregoing knives or erasers shall be dutiable at not less than the rate herein imposed upon knives and erasers valued at more than 50 cents and not exceeding $1.25 per dozen; cuticle knives, corn knives, nail files, tweezers, hand forceps, and parts thereof, finished or unfinished, by whatever name known, 60 per centum ad valorem: Provided, That any of the foregoing, if imported in the condition of assembled, but not fully finished, shall be dutiable at not less than the rate of duty herein imposed upon fully finished articles of the same material and quality, but not less in any case than 15 cents each and 55 per centum ad valorem: Provided further, That all the articles specified in this paragraph, when imported, shall have the name of the maker or purchaser and beneath the same the name of the country of origin die sunk conspicuously and indelibly on the shank or tang of at least one or, if practicable, each and every blade thereof.

Par. 357. Nail, barbers', and animal clippers, pruning and sheep shears, and all scissors and other shears, and blades for the same, finished or unfinished, valued at not more than 50 cents per dozen, 3½ cents each and 45 per centum ad valorem; valued at more than 50 cents and not more than $1.75 per dozen, 15 cents each and 45 per centum ad valorem; valued at more than $1.75 per dozen, 20 cents each, and 45 per centum ad valorem: Provided, That all articles specified in this paragraph, when imported, shall have die sunk conspicuously and indelibly, the name of the maker or purchaser and beneath the same the name of the country of origin, to be placed on the outside of the blade, between the screw or rivet and the handle of scissors and shears (except pruning and sheep shears), and on the blade or handle of pruning and sheep shears and clippers.

Par. 358. Safety razors, and safety-razor handles and frames, 10 cents each and 30 per centum ad valorem; razors and parts thereof, finished or unfinished, valued at less than 75 cents per dozen, 18 cents each; valued at 75 cents and less than $1.50 per dozen, 25 cents each; valued at $1.50 and less than $3 per dozen, 30 cents each; valued at $3 and less than $4 per dozen, 35 cents each; valued at $4 or more per dozen, 45 cents each; and in addition thereto on all the foregoing, 45 per centum ad valorem; blades for safety razors, in strips, one-half of 1 cent each and 30 per centum ad valorem; all others, 1 cent each and 30 per centum ad valorem: Provided, That all articles specified in this paragraph, when imported, shall have the name of the maker or purchaser and beneath the same the name of the country of origin die sunk conspicuously and indelibly on the blade or shank or tang of each and every blade and on safety razors and parts thereof.

Par. 359. Surgical instruments, and parts thereof, including hypodermic needles, hypodermic syringes, and forceps, composed wholly or in part of iron, steel, copper, brass, nickel, aluminum, or other metal, finished or unfinished, 70 per centum ad valorem; dental instruments, and parts thereof, including hypodermic needles, hypodermic syringes, and forceps, wholly or in part of iron, steel, copper, brass, nickel, aluminum, or other metal, finished or unfinished, 60 per centum ad valorem: Provided, That all articles specified in this paragraph, when imported, shall have the name of the maker or purchaser and beneath the same the name of the country of origin die sunk conspicuously and indelibly on the outside, or if a jointed instrument on the outside when closed.

Instruments of All Kinds

Par. 360. Philosophical, scientific, and laboratory instruments, apparatus, utensils, appliances (including drawing, surveying, and mathematical instruments), and parts thereof, wholly or in chief value of metal, and not plated with gold, silver, or platinum, finished or unfinished, not specially provided for, 40 per centum ad valorem: Provided, That all articles specified in this paragraph, when imported, shall have the name of the maker or purchaser and beneath the same the name of the country of origin die sunk conspicuously and indelibly on the outside, or if a jointed instrument on the outside when closed.

Par. 361. Slip joint pliers, 60 per centum ad valorem; other pliers, pincers, and nippers, of all kinds, and hinged hand tools for holding and splicing wire, finished or unfinished, valued at not more than $2 per dozen, 10 cents each and 60 per centum ad valorem; valued at more than $2 per dozen, 20 cents each and 60 per centum ad valorem: Provided, That all articles specified in this paragraph, when imported, shall have the name of the maker or purchaser and beneath the same the name of the country of origin die sunk conspicuously and indelibly on the outside of the joint.

Par. 362. Files, file blanks, rasps, and floats, of whatever cut or kind, two and one-half inches in length and under, 25 cents per dozen; over two and one-half and not over four and one-half inches in length, 47½ cents per dozen; over four and one-half and under seven inches in length, 62½ cents per dozen; seven inches in length and over, 77½ cents per dozen.

Par. 369. Automobiles, automobile bodies, automobile chassis, motor cycles, and parts of the foregoing, not including tires, all the foregoing whether finished or unfinished, 25 per centum ad valorem: Provided, That if any country, dependency, province, or other subdivision of government imposes a duty on any article specified in this paragraph, when imported from the United States, in excess of the duty herein provided, there shall be imposed upon such article, when imported either directly or indirectly from such country, dependency, province, or other subdivision of government, a duty equal to that imposed by such country, dependency, province, or other subdivision of government on such articles imported from the United States, but in no case shall such duty exceed 50 per centum ad valorem.

Machinery and Tools

Par. 372. Reciprocating steam engines and steam locomotives, 15 per centum ad valorem; sewing machines, not specially provided for, valued at not more than $75 each, 15 per centum ad valorem; valued at more than $75 each, 30 per centum ad valorem; steam turbines, 30 per centum ad valorem; cash registers, 25 per centum ad valorem; printing presses, not specially provided for, lawn mowers, and machine tools, 30 per centum ad valorem; embroidery machines, including shuttles for sewing and embroidery machines, lace-making machines, machines for making lace curtains, nets and nettings, 30 per centum ad valorem; knitting, braiding, lace braiding and insulating machines, and all other similar textile machinery, finished or unfinished, not specially provided for, 40 per centum ad valorem; all other textile machinery, finished or unfinished, not specially provided for, 35 per centum ad valorem; cream separators valued at more than $50 each, and other centrifugal machines for the separation of liquids or liquids and solids, not specially provided for, 25 per centum ad valorem; combined adding and typewriting machines, 30 per centum ad valorem; apparatus for the generation of acetylene gas from calcium carbide, 20 per centum ad valorem; machines for cutting or hobbing gears, 40 per centum ad valorem; punches, shears, and bar cutters, intended for use in fabricating structural or other rolled iron or steel shapes, 40 per centum ad valorem; all other machines, finished or unfinished, not specially provided for, 30 per centum ad valorem: Provided, That parts, wholly or in chief value of metal, of any of the foregoing, shall be dutiable at the same rate of duty as the articles of which they are parts: Provided further, That machine tools as used in this paragraph shall be held to mean any machine operating other than by hand power which employs a tool for work on metal.

Par. 373. Shovels, spades, scoops, forks, hoes, rakes, scythes, sickles, grass hooks, corn knives, and drainage tools, and parts thereof, composed wholly or in chief value of metal, whether partly or wholly manufactured, 30 per centum ad valorem.

Par. 386. Quicksilver, 25 cents per pound: Provided, That the flasks, bottles, or other vessels in which quicksilver is imported shall be subject to the same rate of duty as they would be subjected to if imported empty.

Par. 397. Drills (including breast drills), reamers, taps, dies, bits, gimlets, gimlet-bits, countersinks, planes, chisels, gauges, and other cutting tools; pipe tools, wrenches, spanners, screwdrivers, bit braces, vises, and hammers; calipers, rules, and micrometers; all the foregoing, if hand tools not provided for in paragraph 352, and parts thereof, wholly or in chief value of metal, not specially provided for, 50 per centum ad valorem.

Par. 399. No allowance or reduction of duties for partial loss or damage in consequence of rust or of discoloration shall be made upon any description of iron or steel, or upon any manufacture of iron or steel.

* * *

Par. 204. Crude magnesite, five-sixteenths of 1 cent per pound; caustic calcined magnesite, fifteen-sixteenths of 1 cent per pound; dead burned and grain magnesite, and periclase, not suitable for manufacture into oxychloride cements, twenty-three fortieths of 1 cent per pound.

Par. 297. . . . fluorspar, $8.40 per ton.

Par. 213. Graphite or plumbago, crude or refined; Amorphous, 10 per centum ad valorem; crystalline lump, chip, or dust, 25 per centum ad valorem; crystalline flake, 1¼ cents per pound. As used in this paragraph, the term "crystalline flake" means graphite or plumbago which occurs disseminated as a relatively thin flake throughout its containing rock, decomposed or not, and which may be or has been separated therefrom by ordinary crushing, pulverizing, screening, or mechanical concentration process, such flake being made up of a number of parallel laminae, which may be separated by mechanical means.

British Markets Are Stronger

Middlesbrough Pig Iron Scarce, with Larger Demands from Continent and America—Galvanized and Black Sheet Prices Advanced—Continental Manufacturers of Steel Bars Competing Sharply—Order Booked for 9000 Tons of Rails for Argentina

European Headquarters,
IRON TRADE REVIEW,
Caxton House, Westminster, S. W.1

LONDON, May 14.—(*By Cable*)—Middlesbrough pig iron supplies are scarce, with a considerable number of inquiries from American and continental buyers. Furnaces are sold three months ahead. East coast hematite furnaces are booked for six weeks, and are receiving premiums for delivery.

Steel bars made on the continent now are £7 ($33.95) delivered, Birmingham, compared with £8 1s ($39.04) for British material and longer deliveries. Prices of galvanized sheets made in Britain have been increased 5 shillings ($1.21) and black sheets 1 shilling (24.2 cents), due to higher prices of raw material. Demand for galvanized sheets is improving. Bolckow, Vaughan & Co. have booked 9000 tons of rails for delivery to Argentina. The market for structural steel is active at Middlesbrough, but dull in the Midland.

A report from Berlin states British consumers are buying sheet bars, and British colonies are ordering locomotives. French and Belgian markets are quiet.

Production of pig iron in Great Britain in April totaled 611,300 tons, compared with 590,500 tons in March and 520,000 tons in February. On May 1, 152 stacks were in blast, seven more than on April 1. Steel ingot production in April totaled 808,600 tons, against 859,900 tons in March and 775,000 tons in February.

British iron and steel imports in April amounted to 261,932 tons, compared with 182,107 tons in March and 163,474 tons in February. April exports totaled 339,804 tons, against 350,138 tons in March and 417,127 tons in February.

British Steel Market Continues Steady Gain

BIRMINGHAM, Eng., May 3.—While there is no boom in the iron and steel trades there is every indication that they are making a slow steady recovery and among signs of this revival is the reduction in the number of unemployed in the Middlesbrough district which depends entirely on the basic industries. In three months there has been a reduction of nearly 40 per cent. Since Jan. 1, nine blast furnaces have been restarted and four more are to be put into operation this month. Though

Sterling $4.85

the figures of pig iron exports from the Tees are not yet available it is a fact that the total has not been equaled for over three years. Tees shipments last month were 96,912 tons.

As far as market conditions are concerned there is a feeling that buyers are postponing orders until the excitement of the general election is over. At the same time it is confidently anticipated that steady improvement will be maintained in second half. In the Middlesbrough district production is not keeping pace with demand and supplies are scarce. In these circumstances it would not be surprising if makers embarked on a policy of inflation, but so far prices have not soared beyond £3 8s 6d ($16.60) for No. 3. East coast hematite is well sold into June and home and export sales for third quarter are reported at £3 14s ($17.93) upwards. In the Barrow district there

Current Iron and Steel Prices of Europe

Dollars at Rates of Exchange, May 13	*British* Gross Tons U. K. Ports		*French* Metric Tons Channel Ports		*Belgium and Luxemburg* Metric Tons Channel Ports		*German* Metric Tons Rotterdam or North Sea Port	
Export Prices f. o. b. Ship at Port of Dispatch—By Cable		£ s d		£ s d		£ s d		£ s d
PIG IRON								
Foundry No. 3, Silicon 2.50-3.00	$16.61	3 8 6*	$17.46	3 12 0	$17.46	3 12 0	$16.98	3 10 0
Basic	16.13	3 6 6	16.73	3 9 0	16.73	3 9 0	15.76	3 5 0
Basic-bessemer	17.58	3 12 6†	16.73	3 9 0	16.73	3 9 0	15.76	3 5 0
Hematite, Phosphorus 0.02-0.05	17.95	3 14 0	23.66	605*	.....	....	17.46	3 12 0
SEMIFINISHED STEEL								
Billets	$31.53	6 10 0	$26.19	5 8 0	$26.19	5 8 0	$25.95	5 7 0
Wire rods	41.83	8 12 6	30.92	6 7 6	30.92	6 7 6	30.92	6 7 6
FINISHED STEEL								
Standard rails	$37.59	7 15 0	$31.53	6 10 0	$31.53	6 10 0	$31.53	6 10 0
Merchant bars	1.79c	8 5 0	1.32c	6 0 0	1.32c	6 0 0	1.32c	6 0 0
Structural shapes	1.60c	7 7 6	1.12c	5 2 0	1.12c	5 2 0	1.12c	5 2 0
Plates, ship, bridge and tank	1.76c	8 2 6	1.39c	6 6 0	1.39c	6 6 0	1.39c	6 6 0
Sheets, black, 24 gage	2.17c	10 0 0	2.33c	10 12 0	2.33c	10 12 0	2.50c	11 7 0
Sheets, galvanized, 24 gage, corrugated	2.96c	13 12 6	3.01c	13 13 9	3.01c	13 13 9	3.43c	15 12 0
Bands and strips	2.17c	10 0 0	1.40c	6 7 6	1.40c	6 7 6	1.40c	6 7 6
Plain wire, base	2.06c	9 10 0	1.71c	7 15 0	1.71c	7 15 0	1.74c	7 18 0
Galvanized wire, base	2.93c	13 10 0	2.12c	9 12 6	2.12c	9 12 6	2.11c	9 12 0
Wire nails, base	2.39c	11 0 0	1.79c	8 2 6	1.79c	8 2 6	1.76c	8 0 0
Tin plate, base box 108 pounds	$ 4.49	0 18 6	.....	.....	.....	.....	$ 6.79	1 8 0

*Francs

Domestic Prices at Works or Furnace—Last Reported		Francs		Francs		Marks
Foundry No. 3 Pig Iron, Silicon 2.50-3.00	$16.61 3 8 6	$18.57	475(2)	$17.24	620	$18.49 78
Basic pig iron	16.13 3 6 6	19.94	510(1)	16.96	610	20.86 88
Furnace coke	3.64 0 15 0	6.06	155	5.84	210	5.10 21.50
Billets	31.53 6 10 0	24.24	620	26.27	945	28.69 121
Standard rails	1.79c 8 5 0	1.46c	810	1.63c	1,250	1.51c 140
Merchant bars	1.84c 8 10 0	1.36c	755	1.39c	1,070	1.52c 141
Shapes	1.71c 7 17 6	1.26c	700	1.22c	940	1.49c 138
Plates, ship, bridge and tank	1.87c 8 12 6‡	1.54c	855	1.46c	1,120	1.71c 158
Sheets, black, 24-gage	2.28c 10 10 0	2.92c	1,620	2.70c	2,080	2.43c 225
Sheets, galvanized 24 gage, corrugated	2.93c 13 10 0	3.78c	2,100	3.84c	2,950	3.78c 350
Plain wire	2.06c 9 10 0	1.94c	1,075	2.08c	1,600	2.48c 230
Bands and Strips	2.17c 10 0 0	1.51c	840	1.70c	1,310	1.77c 164

*Middlesbrough; †Scotch foundry iron; ‡delivered; (1) Basic-bessemer; (2) Longwy. British export furnace coke £0 15s 0d ($3.64) f. o. b. Ferromanganese £21 13s, 0d ($105.00) delivered Atlantic seaboard, duty-paid. German ferromanganese £15 0s 0d ($72.75) f. o. b.

The equivalent prices in American currency are in dollars per ton for pig iron, coke, semi-finished steel and rails; finished steel is quoted in cents per pound and tin plate in dollars per box. British quotations are for basic open-hearth steel; French, Belgian, Luxemburg, and German are for basic-bessemer steel.

is no expansion of output in the hematite trade although iron is scarce and consumers have to pay higher prices for prompt parcels where these are obtainable. The Continent is buying substantial tonnages and shipments on a good scale of special quality irons are being made to America. In the Midland pig iron district business is limited to small parcels promptly delivered, forward contracting being carefully avoided. Prices are firm and one seller is quoting beyond the recognized price of £2 19s ($14.29) at the furnace for Northampton. In this instance, however, the particular party concerned has shown rather an independent attitude towards the stabilization scheme. Various points in connection with this project have to be settled and merchants and manufacturers are meeting early next week for this purpose. The question of quoting a delivery price is a matter of some concern to merchants for furnacemen demand to know the destination of iron. It will be readily understood that this involves an enormous amount of extra office work and this is one of the sore points which will come up for discussion at the meeting.

On the Birmingham exchange billets were not easy to obtain and firm prices prevailed. Makers are in a strong position now that Continental works cannot deliver under about £6 6s ($30.55) whereas English works want £6 10s ($31.52) and Welsh works £6 7s 6d ($30.91). On the other hand, there is decided weakness in steel bars from the Continent which has widened the gap between English and Continental prices. It has always been understood that steel bars were a little dearer than Belgian No. 3 iron, both of these products being used extensively by nut and bolt makers in the Black Country districts. Latest advices from the Continent indicate that both descriptions of bars can be delivered in Birmingham at £7 2s 6d ($34.55), a low figure. At the lowest the English steel bar would be sold at £8 5s ($40.01) so that the menace of competition has become more serious.

The position in regard to structural steel is serious. Birmingham engineers are receiving few new inquiries and are therefore unable to place business with the heavy steel mills. On the other hand, some steel makers are dissatisfied with the policy of the Steelmakers' association in leaving prices at the old basis in view of the fact that cost of production has increased considerably during the last few months. With a view to dealing with structural steel problems the British Steelwork association has been formed. It is not a profit earning company, but the promoters believe the best way to assist the trade is to provide the consumer with details on such matters as stress loads, factors of safety and the production and maintenance of structural steel work.

Makers of best iron bars in Staffordshire still maintain the price at £12 ($58.20) per ton and some business from home railways has helped to keep mills working steadily. But in the crown iron trade business is patchy and makers are not able to obtain the higher prices recently quoted.

Indian buyers have been in the market, placing an order with a Birmingham firm of wagon builders for 80 all-steel wagons specially designed for carrying iron ore, and also 20 bogie rail wagons. The Bengal Nagpur Railway Co. Ltd. has placed a contract with Beyer Peacock & Co. Ltd., Manchester, for 16 locomotives, each weighing 232 tons, representing the heaviest ever designed or manufactured in Europe. Contracts for 55 standard type locomotives are said to be pending for the Indian State railways. Competition from Continental firms is keen both in wagons and locomotives and the Indian Store department have placed orders with German firms during the last few days in spite of the fact that leading British works sent in bids.

French Steel Market Faces Less Pleasing Domestic Conditions

PARIS, April 30—(*European Staff Service*)—The situation of the French steel market is good, but not as satisfactory as previously reported. Many branches of the trade are realizing that the buying capacity of the home market has seriously decreased, and the government is held responsible for this state of affairs. It is pointed out that the French nation has a heavy burden of taxes, and it is this burden which has helped the reconstruction of the devastated areas and the rebuilding of the destroyed plants; consequently it is quite natural to admit that the question discussed by the financial expert committee had an unpleasant effect on French trade. Nevertheless, metallurgy is active, but the volume of new orders is not large. It is certain that an increase of wages will be asked by the workers, due to the increase in prices of usual commodities and food. It then will be natural to expect an increase in prices of metallurgical products, but it is feared that this may result in some falling off of business, and endeavors are being made to prevent prices rising.

The past week has been important, as various sales organizations held their meetings. Prices were unchanged for semifinished products, beams and wire rods. The A-products comptoir, which handles semifinished steel and beams, discussed its renewal, because the actual contract was effective only to May 1. Many modifications have been made, the most important referring to export trade, which in future will be absolutely free. The comptoir will handle only home trade. A meeting was held in London April 12, when the agreement between rail manufacturers was definitely accepted. Signatures will be appended to the contract when the French and German translations are completed. The association has been called IRMA, for International Rail Makers' Association, instead of ERMA, for European Rail Makers' Association, owing to the inclusion of America in the association. Phosphorus pig iron producers have decided to maintain the prevailing price.

Franc—3.91c

Inquiries for hematite have moderately receded. Semifinished products remain scarce, but transformers have a slight possibility of getting the tonnage they require, but they are obliged to pay the new prices which are to be applied only after May 1. The old prices were unsatisfactory, and the increase of 30 francs ($1.17) per metric ton enables the works to take orders at remunerative prices. The beam market is active, the building trade having resumed operations after an interruption of several months. Finished products remain unchanged, but delays in delivery are shorter, and it is not uncommon to see works accepting shipments of new orders for delivery within 5 or 6 weeks. The wire products department is active and prices continue to hold.

British Prices Higher

London, April 30—(*European Staff Service*)—The board of trade returns for March give the average British export prices per gross ton for some iron and steel products. These prices are compiled from actual contracts which were made several months ago, and this accounts for the difference between these quotations and the base prices regularly quoted.

Compared with those of the preceding month, prices in March showed an increase for every commodity mentioned. In comparison with a year ago, prices also were higher, except for black sheets and tin plates.

March, 1929	£	s	d	$
Foundry pig iron	3	19	9	19.34
Beams	9	5	4	44.94
Rails	9	6	8	45.26
Plates	10	6	5	50.05
Black sheets under ⅛-inch thick	12	2	5	58.78
Galvanized sheets	15	13	2	75.94
Tinplates	19	12	10	95.26

German Orders Higher

Berlin, April 30—(*European Staff Service*)—The quarterly report of the United States Steelworks Corp. shows orders on the books March 31 are 10 per cent higher than the average monthly orders during the business year 1927-28, while the number of employes is nearly 6 per cent less than a year ago. Production for the first quarter, as compared with the preceding quarter is as follows, in metric tons:

	Jan.-Mar., 1929	Oct. Dec., 1928
Coal	6,838,320	6,029,290
Coke	2,431,578	1,856,839
Pig iron	1,660,403	947,942
Raw steel	1,824,733	1,016,961

Here and There in Industry

Timely Information Which Records Developments in Various Lines of Productive Enterprise

JEFFREY MFG. CO., Columbus, O., announces the incorporation of the Jeffrey Mfg. Co. Ltd., at Montreal, Que. The new company has its head office and works in Montreal; a branch office in Toronto; and a mining supply warehouse in Calgary, Alberta. Jeffrey Mfg. Co. recently acquired the Galion Iron Works & Mfg. Co., Galion, O., manufacturer of road machinery, including gasoline and steam road rollers, leaning wheel road graders, tractor power graders, road drags and road plows. This company also manufactures cast-iron and special non-corrosive galvanized culverts. In addition to the Jeffrey line, it is the intention of the Jeffrey Mfg. Co. Ltd., to supply the complete line of Galion machinery from its Canadian plant. Officers of the Jeffrey Mfg. Co. Ltd., are: R. W. Gillispie, president; R. H. Ross, treasurer and manager; and F. N. Diehl, secretary.

* * *

STANDARD SALES CO., iron and steel products, New York, has moved from 19 West Forty-fourth street to 20-26 West Twenty-second street.

* * *

E P. PITFIELD CO., 96 Dewey street, Worcester, Mass., has been appointed Central Massachusetts representative by the Steel Frame House Co., Pittsburgh.

* * *

GENERAL ENGINEERING WORKS, 340 West Huron street, Chicago, which was incorporated recently, is completing a plant at 4701 West Division street and will occupy it in a short time.

* * *

WORCESTER GAS LIGHT CO., Worcester, Mass., has started construction of a new generator house, gas machinery unit and boiler plant. New separator and purifer units are nearing completion.

* * *

MOTOR INDUSTRIES INC., 105 West Adams street, Chicago, a subsidiary of the Bendix Aircraft Corp., South Bend, Ind., has acquired a vacant plot 93 x 180 at South Park avenue and Thirtieth street, Chicago, for the erection of a 2-story building to be used as a service and automobile and aircraft accessory station. Provision will be made for additional stories later.

* * *

OHIO ELECTRIC & CONTROLLER CO., Cleveland, has appointed J. W. Rumely Chicago district sales manager for its motor department, 333 North Michigan avenue, Chicago, effective June 1.

* * *

CLEGG LOCK WASHER CORP., recently organized to manufacture lock washers and other devices, has bought a one-story factory building at 4725 West Lake street, Chicago, and will equip it for manufacturing.

* * *

NEW YORK STRUCTURAL STEEL BOARD OF TRADE has moved its offices from 5109 to 3002 Grand Central Terminal building, New York, acquiring an additional 1000 square feet of floor space.

* * *

INDEPENDENT CAN CO., 1328 West Monroe street, Chicago, has purchased a 2-story factory building at Washtenaw avenue and Van Buren street, Chicago. The building contains about 20,000 square feet of working space.

* * *

MOLLENBERG-BETZ MACHINE CO., formerly at 100 Washington street, Buffalo, has taken over the property formerly occupied by the Buffalo Tool & Supply Co. at 20-26 Henry street, and is now occupying the new quarters.

* * *

GENERAL REFRACTORIES CO., Philadelphia, manufacturer of metallurgical brick has appointed Woodward & McMillan, sales agents for Cuba, Guatemala, British Honduras, Salvador, Nicaragua, Costa Rica, Panama, Trinidad Islands and Jamaica.

* * *

SENECA WIRE & MFG. CO., Fostoria, O., has purchased the plant and business of the Wheeldon Wire Co., West Brookfield, Mass., from the receiver and will conduct the business as the West Brookfield division of the Seneca company. L. E. Kinn, president and general manager of the new owners, is arranging for immediate resumption of plant operations.

* * *

BARTON STEEL CO., Chicago, formerly Barton Spider-Web System, Inc., producer of billet and rail steel bars, reinforcing mesh and other steel building materials, is in voluntary operating receivership. Present plans are to continue operations. Chicago Title & Trust Co. has been named receiver.

* * *

WASHBURN CO., Worcester, manufacturer of wire goods, has been awarded a plaque by the Worcester Safety Council for having made in one year the greatest reduction in industrial accidents, heading the list of 44 plants. The Washburn Co. had 6.4 accidents per 100 employes last year.

* * *

KLOTZ MACHINE CO., Sandusky, O., recently organized, has taken over the plant of the former Klotz Co., which has been purchased from the estate of Augustus H. Klotz. A general foundry and machine business will be conducted. The company is headed by H. R. Farnsworth, formerly with the Paper & Textile Machinery Co., president; George M. Rinkleff, vice president; J. W. Frank, treasurer, and P. H. Mielke, secretary.

* * *

CONSOLIDATED FOUNDRIES INC., San Francisco, is concluding negotiations for the purchase of the Best Steel Casting Co., which operates two plants at Oakland, Calif. Expansion of these facilities is planned. Consolidated Foundries Inc., also operates the Jewell Steel & Malleable Co., San Francisco; Pacific Malleable Casting Co., Oakland, Calif., and the Western Malleable Casting Co., Los Angeles.

* * *

ROYER FOUNDRY & MACHINE CO., Wilkes-Barre, Pa., during April sold sand separators and blenders to the following firms: City Pattern Works, Detroit; Corner Brook Foundry & Machine Co., Corner Brook, Newfoundland; Electric Alloys Co., Elyria, O.; Electric Auto-Lite Co., Fostoria, O.; Enterprise Iron Works, Inc., Albert Lea, Minn.; Goulds Pumps,

Inc., Seneca Falls, N. Y.; Imperial Iron Corp., St. Catharines, Ont.; Independence Stove & Foundry Co., Independence, Mo.; Keeler Brass Co., Grand Rapids, Mich.; Meadows Mfg. Co., Bloomington, Ill.; Minster Machine Co., Minster, O.; Jas. Morrison Brass Mfg. Co., Ltd., Toronto, Ont.; and the Walworth Co., Boston.

* * *

BROOKE L. JARRETT & CO., engineers, Oliver building, Pittsburgh, have moved to larger quarters in the Koppers building.

* * *

HIGHLAND BODY MFG. CO., Elmwood, Cincinnati, has awarded a contract to the Austin Co., Cleveland, for a sheet metal shop, one story, 70 x 125 feet.

* * *

TIMKEN ROLLER BEARING CO., Canton, O., has started construction of a second unit at Gambrinus, O., where the first unit has been completed and placed in operation.

* * *

CULBERT PIPE & FITTINGS CO., Jersey City, N. J., has opened a branch store and warehouse at 166 Clay street, Paterson, N. J. William H. Merrick is manager.

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COSTELLO ENGINEERING CO., Pittsburgh, has sold 46 additional pair furnaces of its patented type since October, 1928, making a total of 351 now in service.

* * *

MAURER STEEL BARREL CO. INC., Long Island City, N. Y., has let a contract to the Austin Co., Cleveland, for an addition 175 x 300 feet, one story, with two-story office section.

* * *

SOUTHERN MANGANESE STEEL CO., St. Louis, maker of heat and corrosion resisting alloy castings, has moved its Pittsburgh offices to the Koppers building, where larger space has been taken.

* * *

CARLTON MACHINE TOOL CO., Cincinnati, manufacturer of radial drills, will build an additional unit, one story, 112 x 150 feet, at Spring Grove and Meeker streets. The Austin Co., Cleveland, has been given the contract.

* * *

CHICAGO UTILITIES CORP., headed by Neil C. Hurley and J. F. Roche, has bought and is operating the newly-organized Binks Mfg. Co., manufacturer of spray painting and spray cooling systems. Mr. Hurley, president, formerly was vice president, president and chairman of the board of the Hurley Machine Co. Mr. Roche formerly was manager of the Montana Power Co., vice president of the Apex Electric Distributing Co. and assistant to the president of the Edison Electric Appliance Co. He is executive vice president and treasurer.

* * *

READING IRON CO. has moved its general sales offices from Reading, Pa., to 230 Park avenue, New York, and H. F. Mattern, general sales manager, has established his headquarters at the New York address.

* * *

CONSTRUCTION EQUIPMENT CO., Spokane, Wash., has been formed to take over several lines of equipment manufacturing formerly conducted by the Hofius-Ferris Equipment Co. C. A. Burnett and associates form the new company.

* * *

McMANUS STEEL & IRON CO., Detroit, recently organized to take over the plant formerly occupied by the Buhl Mfg. Co., Wight and Adair streets, has started operations. An electric furnace of 1½-ton capacity has been installed.

* * *

AMERICAN HEAT ECONOMY BUREAU INC., Pittsburgh, has been awarded a contract for burners for all stoves and boilers for three blast furnaces at the Anzan steel works of the South Manchuria Railway Co. The contract calls for 22 burners.

* * *

OAKES-SWENSON CO., Indianapolis, manufacturer of light metal stampings and ball cups, has elected officers, as follows: President, Warren D. Oakes; vice presidents, James L. Gavin and Eric Swenson; secretary, Carl G. Swenson; treasurer, Parry Oakes.

* * *

BRIGGS & TURIVAS INC., Blue Island, Ill., has bought for dismantling the by-product coke plant of the Mayville Iron Works of the Youngstown Sheet & Tube Co., at Mayville, Wis. This is one of the oldest coke plants in Wisconsin and was built at a cost of about $3,000,000.

* * *

LINE MATERIAL CO., South Milwaukee, Wis., manufacturer of power transmission and distributing equipment, has been reincorporated with a Delaware charter with 200,000 shares no par value. The company was formed in 1911 by William D. Kyle with cash capital of $5000. It has branch plants at Barton, Wis., East Stroudsburg, Pa., and Toronto, Ont. William D. Kyle is president, L. E. Hendee vice president and secretary, C. J. Lemont treasurer.

* * *

VULCAN PLOW CO., Evansville, Ind., has acquired the Peoria Drill & Seeder Co., according to announcement of G. A. Trimble, vice president. The newly acquired plant, at which drills, seeders and other farming implements are manufactured, consists of two buildings and employs 200 men.

* * *

LUNA METALCRAFT CORP., manufacturer of metal stampings, radiator cabinets and enclosures, radio parts, filing devices, is moving its plant from 547 West Twenty-first street, New York, to 40 Emerson place, Brooklyn. The company expects to operate in the new location about June 1.

* * *

HW. CALDWELL & SON CO., Chicago, will exhibit a working model of a screw conveyor, complete with drive and other equipment for cottonseed oil mills, at the convention of oil mill superintendents of Georgia, at Atlanta, Ga., June 12, and the Tri-State Oil Mill Superintendents' association, Memphis, Tenn., June 18.

* * *

STOVE & RANGE CO., Pittsburgh, has been purchased by R. B. Bingay and plans are under way for an enlargement of its plant. Associated with Mr. Bingay will be L. G. McClintock, E. G. Harrington, and C. A. Karthauser, former officials of the Pittsburgh Transformer Co., which was controlled by Mr. Bingay and sold a short time ago to the Allis-Chalmers Mfg. Co., Milwaukee.

* * *

INLAND-STUART LININGS INC. has been incorporated to hold patents and patent applications covering blast furnace linings formerly held by Inland Steel Co., Harbison-Walker Refractories Co. and Brooke L. Jarrett & Co. Offices have been established in suite 1935 Koppers building, Pittsburgh. Use of the patents will be licensed. Linings under these patents break all brick joints, horizontally and vertically.

* * *

UNION ELECTRIC LIGHT & POWER CO., St. Louis, will build a $30,000,000 hydroelectric power plant on the Osage river near Bagnell, Mo. Work will be started immediately, and will give employment to 3000 men. The project will be completed in two years. Contract for construction of the dam has been let to Stone & Webster Engineering Corp. The St. Joseph Lead Co. has contracted to purchase its entire electric current needs from the new plant.

Announces Meeting Program for Testing Materials Society

TO STIMULATE discussion in a symposium on physical properties of cast iron a series of ten short papers on this subject has been arranged as a feature of one of the 15 technical sessions of the thirty-second annual meeting of the American Society for Testing Materials, to be held June 24-28, at Chalfonte-Haddon Hall, Atlantic City, N. J.

The schedule of sessions is similar to those of past years, with the exception of a somewhat lengthier and broader discussion of the nonferrous field. Two entire sessions have been arranged for presentation of committee reports and papers on nonferrous subjects, especially copper alloy sheet materials and aluminum alloys.

Monday, June 24, will be reserved for the registration and committee meetings with the general opening session being held Tuesday afternoon at which time announcement will be made of the election of new officers of the society. Names and business connections of officers nominated are presented herewith. The presidential address and report of the executive committee will be heard Wednesday evening. On Wednesday afternoon Dr. Saul Dushman, assistant director of the research laboratory of the General Electric Co., Schenectady, N. Y., will deliver the fourth Edgar Marburg lecture, following which will be made the third award of the Charles B. Dudley medal to J. J. Kanter, testing engineer, and L. W. Spring, chief chemist and metallurgist, Crane Co., Chicago, for their paper, "'Long-Time' or 'Flow' Tests of Carbon Steels at Various Temperatures with Particular Reference to Stresses Below the Proportional Limit," presented at the annual meeting of the society in 1928.

A tentative program of the meeting is, in part, as follows:

Tuesday, June 25

AFTERNOON

General

Opening remarks by President G. W. Thompson.
Committee reports.
Announcement of election of officers.

Nomenclature, Research and Methods of Testing

Report of committee E-8 on nomenclature and definitions, by Cloyd M. Chapman.
Report of committee E-9 on correlation of research, by H. F. Moore.
Report of committee E-1 on methods of testing, by W. H. Fulweiler.
Paper: "The Determination and Significance of the Proportional Limit in the Testing of Metals," by R. L. Templin.
Paper: "Tension, Bend and Impact Tests on Reinforcing Bars," by W. A. Slater.

EVENING

Cast Iron

Report of committee A-7 on malleable castings, by W. P. Putnam.
Report of sectional committee on specifications for cast iron pipe, by T. H. Wiggin.
Report of committee A-3 on cast iron, by Hyman Bornstein.
Symposium on the physical properties of cast iron. A series of short papers including: "Classification of Properties of Cast Iron," by J. W. Bolton; "Effect of Section and Various Compositions on Physical Properties of Cast Iron," by R. S. MacPherran; "Correlation of Test Bar and Casting," by W. H. Rother and V. M. Mazurie; "Static Strength of Plain and Alloy Cast Iron," by F. B. Coyle; "Elastic Properties of Cast Iron," by J. T. MacKenzie; "The Fatigue Properties of Cast Iron," by J. B. Kommers; "Impact Value of Cast Iron," by Hyman Bornstein; "Wear Testing of Cast Iron," by A. L. Boegehold; "Machinability of Cast Iron," by E. J. Lowry; "Corrosion of Cast Iron," by H. O. Forrest; and "Heat Treatment of Cast Iron," by F. B. Coyle.

Wednesday, June 26

MORNING

Steel and Wrought Iron

Report of committee A-2 on wrought iron, by H. W. Faus.
Report of sectional committee on standardization of dimensions and material of wrought iron and wrought steel pipe and tubing, by H. H. Morgan.
Report of committee A-6 on magnetic properties, by Thomas Spooner.
Report of committee A-8 on magnetic analysis, by R. L. Sanford.
Report of committee A-1 on steel, by J. B. Young.
Paper: "Reduction from Steel Ingot to Forging," by L. H. Fry.
Report of research committee on yield point of structural steel, by M. O. Withey.
Report of joint committee on investigation of the effect of phosphorus and sulphur in steel, by G. K. Burgess.
Report of committee A-9 on ferroalloys, by N. B. Hoffman.
Report of research committee on effect of arsenic and tin on high-speed tool steel, by N. B. Hoffman.

Officers Nominated

AMERICAN SOCIETY FOR TESTING MATERIALS

President

T. D. LYNCH

Consulting metallurgical engineer, Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa.

Vice President

F. O. CLEMENTS

Technical director, research laboratories, General Motors Corp., Detroit.

Executive Committee

G. B. HAVEN

Professor of machine design, in charge of textile laboratory, Massachusetts Institute of Technology, Cambridge, Mass.

C. R. HOOK

Vice president and general manager, American Rolling Mill Co., Middletown, O.

H. E. SMITH

Engineer of materials, New York Central Lines, New York.

G. E. WARREN

Assistant general manager, Portland Cement association, Chicago.

Report of committee A-10 on iron-chromium-nickel alloys, by Jerome Strauss.
Report of joint research committee of A.S.M.E. and A.S.T.M. on effect of temperature on the properties of metals, by G. W. Saathoff.

AFTERNOON

Fourth Edgar Marburg lecture: "The Nature of Cohesive Forces in Solids," by Dr. Saul Dushman.
Charles B. Dudley medal award to J. J. Kanter and L. W. Spring.

EVENING

Annual presidential address, by G. W. Thompson.
Annual report of executive committee, by C. L. Warwick.
Informal dance and smoker.

Thursday, June 27

MORNING

Corrosion and Fatigue of Metals

Report of committee A-5 on corrosion of iron and steel, by J. H. Gibboney.
Paper: "A Critical Study of the A.S.T.M. Corrosion Data on Commercial Steel," by V. V. Kendall and E. S. Taylerson.
Paper: "A Method of Treating Data on the Lives of Ferrous Materials," by R. F. Passano and Anson Hayes.
Report of sectional committee on zinc coating of iron and steel, by J. A. Capp.
Report of committee B-3 on corrosion of nonferrous metals and alloys, by T. S. Fuller.
Paper: "Corrosion of Metals under Stress," by D. J. McAdam Jr.
Report of research committee on fatigue of metals, by H. F. Moore.
Paper: "Fatigue Tests on Specimens of Large Diameter with Special Reference to Welds," by R. E. Peterson.
Paper: "Influence of Corrosion Accelerators and Inhibitors on Fatigue of Ferrous Metals," by F. N. Speller, I. B. McCorkle and P. F. Mumma.

EVENING

Nonferrous Metals, General

Report of committee B-1 on copper wire, by J. A. Capp.
Report of committee B-4 on high-temperature and electrical-resistance alloys, by Dean Harvey.
Paper: "Life Tests on Metallic Resistor Materials for Electrical Heating," by F. E. Bash and J. W. Harsch.
Report of committee B-2 on nonferrous metals and alloys, by William Campbell.
Paper: "Aluminum Alloys for Pressure Die Castings," by Sam Tour.
Report of committee B-7 on light alloys metals and alloys, cast and wrought, by J. B. Johnson.
Paper: "Fatigue Data on Some Aluminum Alloys," by J. B. Johnson and T. T. Oberg.
Paper: "The Effect of Corrosion Accompanied by Stress on the Tensile Properties of Sheet Duralumin," by H. S. Rawdon.

Friday, June 28

MORNING

Nonferrous Metals: Copper and Copper Alloys, Metallography

Paper: "Physical Properties and Methods of Test for Some Sheet Nonferrous Metals," by J. R. Townsend, W. A. Straw and C. H. Davis.
Paper: "Fatigue Studies of Nonferrous Sheet Metals," by J. R. Townsend and C. H. Greenall.
Paper: "Hardness Relationships and Physical Properties of Some Copper Alloys," by C. H. Davis and E. L. Munson.
Report of committee E-4 on metallography, by H. C. Boynton.
Paper: "An X-Ray Study of Copper Which Showed Directional Properties on Cupping," by Arthur Phillips and Gerald Edmunds.
Report of committee B-5 on copper and copper alloys, cast and wrought, by C. H. Mathewson.
Paper: "Bearing Bronzes with and without Zinc," by H. J. French and E. M. Staples.

Continental Can Co. Inc. has acquired McDonald Machine Co., 7600 South Racine avenue, Chicago, manufacturer of can-making machinery.

Industrial Men in the Day's News

George H. Weiler, Secretary-Manager, Forging Manufacturers' Association, New York

KNOWLEDGE of the use of forgings in the locomotive industry, gained in more than a quarter century with one company, equips him well for his new duties.

FOLLOWING in the footsteps of his father, he entered the locomotive construction industry as soon as he finished his academical schooling.

AS MANAGER of sales for the American Locomotive Co., from which position he recently resigned, he was successful in changing the general attitude toward locomotive replacement.

THERE'S a divinity that shapes our ends—" That Shakespeare was correct in thus permitting Hamlet to soliloquize, must be admitted by George H. Weiler who, as noted in IRON TRADE REVIEW of March 7, was chosen secretary-manager of the Forging Manufacturers' association, with headquarters in the Grand Central Terminal, New York.

As Mr. Weiler looks back over his life, he recalls that his father, William Weiler, who had been a soldier in the Civil war, was thrown into contact with one H. G. Brooks, after he discarded the soldier's uniform at Dunkirk, N. Y. The latter then was superintendent of motive power for the Erie railroad. Among other duties he managed the locomotive repair shop. Here the divinity that later was to shape the end of George Weiler stepped in. Mr. Brooks long had been studying the fluctuating demands upon shop facilities and became convinced of the general inefficiency of locomotive repairs. He decided to start an independent repair shop of his own, catering to the needs of several railroads, hoping thus to develop a more constant level of production with resultant lower costs. Accordingly he organized the Brooks Locomotive Works at Dunkirk, installing the elder Weiler as plant superintendent—another stroke of the fateful divinity.

George Weiler, the son, meanwhile was born in Dunkirk in 1882, where he received his early education and where, in 1900, he was graduated from the Dunkirk academy. That year he entered the employ of the Brooks works, one year later reorganized to become the American Locomotive Works, later the present American Locomotive Co.

George Weiler's experience with this company extending from 1901 until his recent appointment took him through nearly all departments. It made him familiar with all phases of the extensive work of building and selling locomotives. He was successful, successively, in the accounting, manufacturing, engineering and selling departments.

In 1915 he was appointed assistant manager of sales at New York for the American Locomotive Co. and several years later he became manager of sales. He held this position at the time he was selected to fill the important post of secretary-manager of the forging manufacturers' group.

It was during his term as manager of sales for the American company that Mr. Weiler became active among railroads in conducting educational campaigns covering the wasteful practice of operating obsolete locomotives. He it was who was largely instrumental in changing the sentiment among railroad purchasing agents or their superiors toward locomotive replacement.

Previously, locomotives had been purchased by the railroads only when it became too evident that conditions demanded such expenditures. It was Mr. Weiler's firm conviction that locomotives should be sold on the same basis as automobiles, tractors, trucks, etc. He compiled elaborate statistics calculated to show the economy of operating new locomotives. He stressed the false economy of continually patching up old locomotives to keep them in service. His preachments carried conviction. Now locomotive buying programs are on a more intelligent and economical basis.

Mr. Weiler makes his home at Rutherford, N. J. He is an enthusiastic golfer, is a member of the Hackensack, N. J., golf club, and is a holder of a pretentious golf cup won in a recent contest.

Men of the Industry

MARCUS T. LOTHROP was elected president of the Timken Roller Bearing Co., Canton, O., May 7 when he succeeded H. H. Timken, who becomes chairman of the board. Other officers elected were W. R. Timken, J. G. Obermier, J. W. Spray, T. V. Buckwalter, and H. J. Porter, vice presidents, and J. F. Strough, secretary-treasurer.

MARCUS T. LOTHROP

Judd W. Spray, vice president and general sales manager was made a director at the recent annual stockholders meeting and another newly elected director is A. C. Ernst, of Ernst & Ernst, Cleveland. All of the previous members of the board of directors were re-elected, including H. H. Timken, W. R. Timken, J. G. Strough.

Mr. Lothrop started with the Timken company in 1911, as metallurgist, and for the past 18 years has been intimately connected with its affairs, being closely associated with H. H. Timken. During that time he has occupied various capacities successively, in metallurgy, research, in charge of operations, and, for the last few years as vice president and general manager in charge of all operating and sales.

Mr. Spray has been with the company for 14 years in various capacities, having been Detroit sales manager up to 1926, after which he was general sales manager until 1928. At that time he was made vice president in charge of sales.

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Harold A. Nehrbas, of Parrish & Co., has been elected a director of Doehler Die Casting Co., Brooklyn, N. Y.

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Charles F. Lambert, president of the Clayton & Lambert Mfg. Co., Detroit, automobile body builder, has been elected a director of the National Bank of Commerce, Detroit.

* * *

Myron C. Taylor, chairman of the finance committee of the United States Steel Corp., New York, has been elected a director of the Metropolitan Opera & Real Estate Co., New York, to succeed the late Ogden Mills.

* * *

L. E. Yentzer, formerly assistant general works manager of the Calumet Steel Co., Chicago, has been appointed general works manager to succeed the late L. H. Hook, whose death was noted in IRON TRADE REVIEW, May 2.

* * *

Owen D. Young has been re-elected chairman of the board and R. Wilbur Rice Jr. honorary chairman of the board of the General Electric Co., Schenectady, N. Y., Gerard Swope has been re-elected president. Other officers also were re-elected.

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James S. Thompson was recently elected vice chairman of the board of directors of the American Brake Shoe & Foundry Co., New York to succeed William G. Pearce, who becomes chairman of the executive committee.

* * *

L. B. Green returns to the Globe Machine & Stamping Co., Cleveland, as works manager after an absence of five years. He resigned as superintendent in 1924 and since that time has performed special engineering work for several companies, including the Meadows Mfg. Co., Bloomington, Ill., for which interest he developed a variable speed washing machine.

* * *

Herman C. Maise, who for 10 years has been associated with the Briggs Mfg. Co., Detroit, automobile body builder, latterly as vice president and general manager, has resigned. For 25 years Mr. Maise has been one of the prominent production men of the industry.

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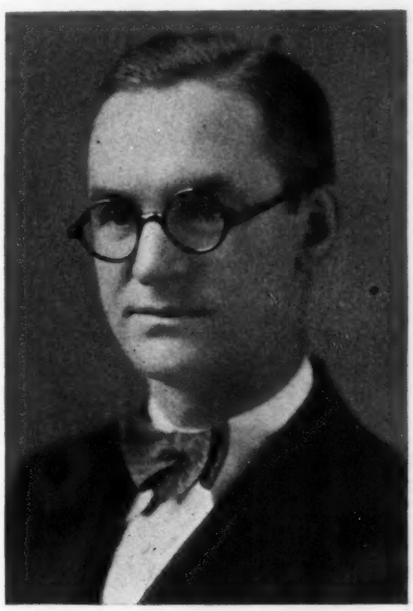
M. J. Carroll, formerly connected with the roll department Hubbard Steel Foundry Co., East Chicago, Ind., and since June, 1928, foundry foreman



F. W. MANKER

with the Pettigrew Foundry Co., Harvey, Ill., has been made superintendent of the Michigan City Foundry & Machine Co., Michigan City, Ind.

* * *

Dr. Fritz Opel, representing the German Opel Works, in which the General Motors Corp., Detroit, recently acquired an interest, was elected a director of the General Motors Corp. at the annual stockholders' meeting May 8, when the board was increased from 32 to 33. Retiring directors were re-elected.

* * *

J. F. Reichert, formerly president and general manager of the J. M. & L. A. Osborn Co., Cleveland, with John A. Decker, until May 1 general manager of sales of the same company, and A. J. Decker, who for eight years has been with the Morse-Rogers Steel Co., Cleveland, have organized the Decker-Reichert Steel Co.,

with headquarters at 530 Terminal Tower building, Cleveland, to market sheet and strip steel seconds. A warehouse will be established later.

* * *

C. B. Phillips has been promoted from assistant sales manager to sales manager of the Surface Combustion Co., Toledo, O. He succeeds F. W. Manker, who resigns to become assistant to the president of the Great Lakes Steel Corp., Detroit.

Mr. Phillips has been with the Henry L. Doherty organization since his graduation from Purdue university in 1917. Starting with the junior engineers at Toledo, he resigned for war service in 1918 but returned to Toledo

C. B. PHILLIPS

at the close of 1918 as industrial fuel engineer with Henry L. Doherty & Co. He was transferred in 1921 to engineering work on complete gasification development and in 1922 to the improved alliance division of the Combustion Utilities Corp. He was made sales manager of this company in 1923. When the Surface Combustion Co. was taken over and merged with improved alliance division in 1924, Mr. Phillips became vice president and assistant sales manager, which position he has held ever since.

Mr. Manker was with the B. F. Sturtevant Co. from the time of his graduation from Carnegie Institute of Technology in 1912, until 1917. He then resigned as district manager at Cleveland and became sales manager of the American Incandescent Heat Co. In 1920 he resigned to represent A. Hermansen in this country in the design and construction of industrial furnaces. In 1923 he joined the Doherty organization in charge of the special furnace division of the Combustion Utilities Corp. In the consolidation in 1924, he became vice president and sales manager of the Surface Combustion Co.

The recently organized Great Lakes Steel Corp. is now beginning the erection of its $15,000,000 steel plant at Ecorse, Mich., near Detroit.

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A. B. Marble, sales manager at Boston for the Jones & Laughlin Steel Corp. for many years, has resigned. He is succeeded by Samuel A. Fuller, formerly with the Cleveland office of the corporation.

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C. A. Dunn, formerly general superintendent of the Globe Seamless Tube Co., Milwaukee, but more recently affiliated with the Hutte Engineering Co., Detroit, was recently made general manager of the Appleton Steel Tube Co., Appleton, Wis.

* * *

Edward F. Early has been appointed superintendent of the Morgan works, Worcester, Mass., of the Wickwire Spencer Steel Corp., Buffalo, to succeed Fred J. Connors, who becomes general superintendent of eastern plant activities.

Rudolph Johnson has been made assistant superintendent at the Morgan works.

* * *

Neal J. Crain has been appointed assistant to the purchasing agent of the United Engineering & Foundry Co., Pittsburgh. Mr. Crain has been associated with the company since 1913 and has been identified with the purchasing department since 1927. He succeeds William J. Green, who has resigned to enter sales work for the Harris Pump & Supply Co., Pittsburgh.

* * *

Louis E. Murphy has been elected president of E. F. Houghton & Co., Philadelphia, manufacturers of oils and leathers. He succeeds Charles E. Carpenter, who died April 6. The board also has elected A. E. Carpenter first vice president and treasurer and George W. Pressell second vice president and secretary. Directors are Louis E. Murphy, Aaron E. Carpenter, George W. Pressell, R. H. Patch, Mrs. N. Greenlee, Miss M. M. Menningen, C. Howard Butler, S. H. Willson and Robert E. Lamberton.

* * *

J. E. Resor has been appointed manager of sales in the strip steel division of the Acme Steel Co., 2840 Archer avenue, Chicago. He formerly was in charge of the company's Detroit office but now succeeds W. J. Adamson, who recently resigned.

William A. Kingsley has been placed in charge of the company's Detroit office, General Motors building, to succeed J. E. Resor.

N. C. McNutt has been appointed special sales representative in the strip steel division with headquarters at the general office, Chicago. He succeeds Mr. Kingsley.

* * *

E. Theodore Sproull has resigned as vice president, secretary and treasurer of the National Association of Flat-Rolled Steel Manufacturers, Cleveland, to take up his duties as president and treasurer of the Brainard Steel Corp.,

E. THEODORE SPROULL

Warren, O., formerly the J. W. Brainard Steel Co., which he has purchased. The Brainard company manufactures electro-galvanized strip specialties, patented hoops, etc.

* * *

George A. Bryant Jr., vice president of the Austin Co., Cleveland, builder and contractor, has been promoted to the newly-created position of executive vice president. He has advanced by successive promotions from an early association with the organization as a field engineer.

J. K. Gannett was made a regional vice president of the eastern district with headquarters in New York; A. S. Low, vice president of the Chicago district with headquarters in that city; and G. W. Plaisted, vice president of the northwestern district with headquarters in Seattle. All three formerly were managers of their respective districts.

Obituaries

ALLISON R. MAXWELL, 37, vice president of the Pittsburgh Steel Co., Pittsburgh, died there May 7. He was born in New Orleans and was educated at St. Catherines, Ont. He was first employed by the Carnegie Steel Co. at its Homestead, Pa., works, and later became assistant general superintendent of the Monessen works of the Pittsburgh Steel Co. Recently he was elected vice president of the latter company.

He was a member of the Pittsburgh Athletic association, Duquesne club, Fox Chapel, Oakmont, Seaview and Pine Valley Country clubs, and the University Club of Pittsburgh.

* * *

Stephen Meaney, 69, president and treasurer of the Atlas Shear Co. and director of the Acme Shear Co., Bridgeport, Conn., died recently.

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Fred H. Davis, 75, retired manufacturer of regulating devices, died May 5 in the Essex Homeopathic hospital in East Orange, N. J.

* * *

Clarence L. Hazzard, 63, president and treasurer of the Quaker City Stencil & Stamp Works, Philadelphia, died at his home in Beverly, N. J., May 5.

* * *

Joseph P. Cowan, 67, president of the Cowan Mfg. Co., electroplater, Pittsburgh, died April 25 at his residence at Daytona Beach, Fla. He once was manager of the Vulcan Forge & Iron Works, Pittsburgh.

* * *

Arthur R. Koelsch, 44, assistant treasurer of the Landon Radiator Co., North Tonawanda, N. Y., died recently after being found unconscious in the garage of his home in Kenmore, N. Y.

* * *

Henry A. Ross, 63, president of the Ross-Tacony Crucible Co., Tacony, Philadelphia, died May 10 at his home in Philadelphia. Upon the death of his father in 1898, Mr. Ross succeeded him as head of the business, which was founded in 1871.

* * *

Benjamin Glyde Wells, 60, vice president and director of the Pittsburgh Forge & Iron Co., Pittsburgh, which was founded by his father died in that city May 6. He also was president of the Illinois Zinc Co. and a director in the Federal Bond & Share Co.

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L. G. Hewins, 40, sales manager of Gears & Forgings Inc., Cleveland, was killed May 8 when his automobile was struck by a train south of Newcastle,

L. G. HEWINS

Ind. He was born at Ashtabula, O., and was graduated from Dennison college. He became affiliated with the National Lamp Works, Cleveland, of the General Electric Co., but about 14 years ago became identified with the Van Dorn & Dutton Co., which later was merged with other interests to form Gears & Forgings Inc.

Mr. Hewins with his wife was making a business trip into Indiana for his company.

* * *

Samuel W. Folsom, who retired from the M. A. Hanna Co., Cleveland, in 1927, after more than 50 years of service, died May 9 in New York from an acute heart attack. Mr. Folsom had been assistant treasurer of the Hanna Co. until the summer of 1927, when he was afflicted with a slight stroke. Since that time he has not participated actively in any business. He was born Dec. 16, 1844, in Cleveland. In 1875 Mr. Folsom was married to Miss Mary Hanna, first cousin of Senator Marcus A. Hanna. He entered the employ of D. P. Rhodes & Co., headed by Hanna's father-in-law. When the concern became the M. A. Hanna Co. he continued his connections.

* * *

George G. Cockburn, 69, manager of the Republic Structural Iron Works, Cleveland, for many years, died May 7 in that city. At the time of his death he was a director of the Mojene Toothpaste Co. Mr. Cockburn was born in Scotland in 1860 but located in this country in 1870. Prior to going with the Republic company he was with the T. H. Brooks Co. for about 25 years.

* * *

Moses V. Joseph, 70, who was instrumental in raising money for the building of the Birmingham Rolling Mills, the first plant to make commercial steel in the Birmingham district, died at his home in Birmingham May 4. At the time of his death he was chairman of the board of Loveman, Joseph & Loeb, vice president of the Avondale mills and affiliated with various corporations.

* * *

G. Albert Carpenter, 69, who for almost 40 years has been owner and manager of the Carpenter Machine Co., Muncie, Ind., died of heart disease April 30. Mr. Carpenter was the first Muncie manufacturer to utilize central electric station power. He started in the machine tool business at the Muncie Foundry & Machine Co. Early in 1896 he established his own business, which later became known as the Albert Carpenter Machine Co. and more recently as the Carpenter Machine Co.

Will Survey Wages

The statistical committee of the Gray Iron institute, Cleveland, has completed arrangements for making quarterly surveys of wages in every branch of the gray iron casting industry. The number of employes for each classification with the average wage according to classification will be given. This information will be broken up into districts.

CONSTRUCTION and ENTERPRISE

Concise Timely Business Building Opportunities from Field of Industry

East Central

CHICAGO—Runzel-Lenz Electrical Mfg. Co., 1751 North Western avenue, manufacturer of wire, cables, etc., recently suffered heavy damage to its 4-story plant by fire.

CHICAGO—Link Belt Co., 310 West Pershing road, has awarded contract for 1-story machine shop addition, 127 x 141 feet. Estimated cost $40,000.

CHICAGO—Elizabeth Steel Foundry, 5833 South Elizabeth street, plans a 1-story addition, 52 x 124 feet, which will cost about $20,000. H. Christensen, 222 West Adams street, Chicago, is the architect.

CHICAGO—Gits Bros. Mfg. Co., 1940 South Kilbourn avenue, recently incorporated to manufacture grease cups, high pressure compressors and lubricating devices, advises it is building a plant addition. (Noted May 9.)

CHICAGO—Mercy hospital, 2537 Prairie avenue, Mary Veronic superintendent, plans building addition and power house. J. E. McCarthy, 139 North Clark street, Chicago, is architect. Estimated cost $3,000,000.

GENEVA, ILL.—Howell Foundry Co. had its State street plant damaged by fire. Estimated loss was about $15,000.

STERLING, ILL.—Wahl Clipper Corp., East Third Street, plans to build a 2-story plant addition, lower floor to be used as a machine shop.

ALEXANDRIA, IND.—Aladdin Industries Inc., 601 West Lake street, Chicago, has awarded contract for constructing plant here, to W. R. Dunkin & Son, Huntington, Ind. (Noted May 2.)

FT. WAYNE, IND.—Fisher Bros. Co., 118 West Columbia street, has plans for a 1-story, 70 x 150-foot machine shop and garage. A. M. Strauss, 706 Tri-State building, is architect.

INDIANAPOLIS—Marmon Motor Co., 1101 West Morris street, has awarded contract for plant addition to H. K. Ferguson Co., Hanna building, Cleveland. Estimated cost $1,500,000. (Noted Jan. 17.)

MICHIGAN CITY, IND.—Northern Indiana Public Service Co. has awarded the contract for the first unit of its electric generating station here, to Herlihy Bros. Construction Co., 228 North LaSalle street, Chicago. Estimated cost $1,000,000.

FLINT, MICH.—Marvel Carburetor Co., 1910 St. Johns avenue, plans to build a 1-story plant addition, including equipment.

FLINT, MICH.—St. Joseph's Hospital association, 720 Ann Arbor street, plans construction of hospital including steam heating, ventilating and refrigerating systems, boilers, elevators, etc. D. A. Bohlen & Son, 100 Majestic building, Indianapolis, are architects.

HOLLY, MICH.—American Spring & Mfg. Corp. has plans for adding about 3000 square feet to its plant space.

MUSKEGON, MICH.—Muskegon Piston Ring Co. plans to build a 1-story plant addition including equipment.

ONTONAGON, MICH.—Anton J. Scovia, city clerk, closes bids May 17 for a water works pumping station and an electric power distributing station, designed by Joseph Green and Peter Walraven, consulting engineers, Iron River, Mich.

OXBOW, MICH.—Consumers Power Co., Jackson, Mich., subsidiary of Commonwealth Power Corp., 14 Wall street, New York, has applied for permit to build a dam on Muskegon river here. Plans include power house with three vertical alternating current generators. Stevens & Wood Inc., 20 Pine street, New York, are engineers.

PONTIAC, MICH.—Oakland Motor Car Co., A. R. Glancy, president, Oakland and Sanderson avenues, has awarded general contract for 1-story addition, 120 x 445 feet, to H. G. Christman-Burke Co., 1010 Fisher building, Detroit.

ASHLAND, O.—Faultless Rubber Co. is planning to build a new power plant and modernize the equipment and present facilities of the entire plant.

CINCINNATI—Carlton Machine Tool Co., Spring Grove and Meeker streets, has awarded contract for a 1-story plant addition, 112 x 150 feet, to the Austin Co., 16112 Euclid avenue, Cleveland.

CINCINNATI—Highland Body Mfg. Co., has awarded contract for a 1-story sheet metal shop, 70 x 125 feet, at its plant in Elmwood, Cincinnati, to the Austin Co., 16112 Euclid avenue, Cleveland.

CLEVELAND—Cleveland Cap Screw Co., 2921 East Seventy-ninth street, is building an addition, 80 x 217 feet. Equipment will be installed.

COSHOCTON, O.—Coshocton Iron Works has awarded contract for the construction of its main plant addition, 150 x 460 feet, to the McClintic-Marshall Construction Co., Rankin, Pittsburgh, Pa. (Noted April 25.)

FAIRFIELD, O.—U. S. Government, Fairfield Airport, care Capt. Laughlin, is completing plans for a 1-story machine and repair shop.

HAMILTON, O.—Niles Tool Works Co. has been granted permit to construct an addition,

Resale Equipment News

MACHINERY and equipment of the Butler Bolt & Rivet Co., Butler, Pa., will be sold at auction by the Industrial Plants Corp., New York, on a date early in June, to be determined later. The material will be sold piecemeal, without reserve. The equipment includes cold headers, cold trimmers, flash bolt trimmers for hot bolts, cold punched nut machines, thread rollers, rivet and bolt headers, upsetting and forging machines, grip headers, hot pressed nut machines, shears, threaders, tappers, universal, plain and vertical milling machines, lathes, shapers, drills, boring mills, grinders, air compressors, steam hammers, electric hoists, milling machine, tool room equipment, motors, small tools, dies and raw materials and supplies.

* * *

Kulka Iron & Metal Co., Alliance, O., which recently bought the plant of the Falcon Tin Plate Co., Canton, O., has sold it to Godfrey Cohen and Alvin Bear, of the Bear Steel Co., 9 South Clinton street, Chicago. The new owners will modernize the plant and put it into production of sheets and tin plate.

Sales Calendar

May 23—Auction of land, buildings and equipment of the Cron Co., Piqua, O.

June—(Date not set)—Auction of machinery and equipment of Butler Bolt & Rivet Co., Butler, Pa.

97 x 144 feet, to its foundry. Work will probably be started immediately.

LIMA, O.—Superior Body Co., East Kibby and Mandelville, plans to start work immediately on construction of plant addition, 60 x 500 feet.

MARION, O.—Osgood Co., manufacturer of steam shovels, plans to start immediate construction of addition to its gray iron foundry, which will increase its capacity 50 per cent.

BELOIT, WIS.—Wisconsin Power & Light Co., 16 North Carroll street, Madison, Wis., will build an addition, 30 x 40 feet, to its artificial gas plant here. E. J. Kallevang is chief engineer.

EVANSVILLE, WIS.—E. S. Cary, superintendent of the city water and light plant, is taking bids until May 23 for a vertical shaft centrifugal type deep well pump.

GREEN BAY, WIS.—Paper Converting Machine Co., Day and North Quincy streets, has contracted with the J. H. Geniesse Co., 820 South Jackson street, for a 1-story manufacturing extension, 80 x 110 feet. (Noted March 28.)

KAUKAUNA, WIS.—Moloch Foundry & Stoker Co., manufacturing boiler house equipment, is about to start work on a foundry addition, plans for which were drawn by Engineers A. A. Wickland & Co., 205 West Wacker drive, Chicago. No estimate of the cost is as yet available.

MANITOWOC, WIS.—Smith & Brandt, architects, this city, have been engaged to prepare plans for a new factory building, dry kiln, dry sheds and boiler house for the W. M. Welch Co., foot of South Seventeenth street, manufacturing laboratory furniture. R. G. Halverson is works manager.

MARSHFIELD, WIS.—Wite-Way Electric Sign Co., Junction City, Wis., has moved its plant and offices to this city and will largely increase its output of electric flashing signs, marquis and other metal specialties. The new plant is in the former Blum garage building. Henry Voyer is president and general manager.

MAUSTON, WIS.—Juneau county highway committee closes bids May 14 for a county machine shop, 50 x 100 feet. Equipment tenders wil be asked later. Hans Christensen is county highway commissioner.

MILWUAKEE—Milwaukee Pattern & Mfg. Co., 1195 Thirtieth street, is building a 2-story factory addition, 58 x 42 feet, to cost about $25,000.

MILWAUKEE—Lubenow Mfg. Co., 592 First avenue, manufacturer of machine screws and other screw machine products, has let the general contract to Meredith Bros., 253 Washington street, for a new shop, 84 x 100 feet, at 427 Reed street. It will cost about $50,000 with additional equipment.

PRAIRIE DU CHIEN, WIS.—Chas. A. Cahill & Sons, 214 Mason street, Milwaukee, engineers, have let following contracts for the equipment of a new power plant, 65 x 80 feet, for the Prairie du Chien Woolen Mills: uniflow engine, Nordberg Mfg. Co., Milwaukee; boilers, Wickes Boiler Co., Saginaw, Mich.; generator, Electric Machinery Mfg. Co., Minneapolis, (Noted March 21.)

RACINE, WIS.—Racine Steel Castings Co. has plans for 1-story addition. A. A. Wickland, 205 West Wacker drive, Chicago, is architect and engineer. Will soon take bids on general contract.

RACINE, WIS.—J. I. Case Threshing Machine Co., 700 State street, is taking bids at its Billings (Mont.) branch for alterations and additions to its warehouse, assembly and repair plant and headquarters building to cost about $75,000.

RACINE, WIS.—City council has purchased the H. & M. Body Corp. property from the Murray Body Corp. of Detroit and will use it as a site for a new municipal group, including city hall, street department headquarters, garbage incinerator, etc. The first unit will be a 120-ton incinerator. The H. & M. property was appraised at $590,000.

North Atlantic

HARTFORD, CONN.—Philbrick, Booth & Spencer, Inc., is building a foundry addition.

WATERBURY, CONN.—Lux Clock Mfg. Co., 97 Sperry street, is having plans prepared for a 4-story plant, 45 x 150 feet. T. M. Freney, 51 Leavenworth street, is architect.

EASTON, MD.—Easton Utilities commission, J. S. McDaniel, secretary, will take bids about Aug. 1 on general contract for electric plant. Estimated cost $30,000.

BOSTON—D. R. Campbell Machine Co., Mildred avenue, has awarded contract for a 1-story shop addition, 40 x 60 feet.

QUINCY, MASS.—Improved Metal Weatherstrip Co., 1431 Hancock street, recently incorporated, advises, it will need no equipment at present, but may possibly later purchase machinery for rolling weatherstrips. (Noted May 9.)

SWAMPSCOTT, MASS.—Hume Pipe of N. E. Inc. recently incorporated, to manufacture concrete pipe, advises it has a plant under construction and part of machinery purchased.

NEWARK, N. J.—Beaver Machine & Tool Co. Inc., 625 North Third street, has plans for a 2-story plant addition, including equipment.

NEWARK, N. J.—Maurer Steel Barrel Co., Inc., Long Island City, N. Y., has awarded contract for its new plant 75 x 300 feet, St Charles street, Newark, to the Austin Co., 16112 Euclid avenue, Cleveland.

SOMERSET HILLS, N. J.—U. S. Veterans' Bureau, room 764, Arlington building, Washington, will receive bids until June 7, for construction of hospital including boiler plant, refrigerator and ice making plant, etc.

BROOKLYN, N. Y.—Metal Hose & Tubing Co., 253 Tillary street, has awarded contract for two 3-story plant additions to Matthew Narsillia, 5801 Maspeth avenue, Maspeth, N. Y. (Noted March 21.)

BUFFALO—Trico Products Co., 624 Ellicot street, John R. Oshei, president, manufacturer of automobile accessories, is taking bids on general contract for plant addition.

NEW YORK—Cerro de Pasco Copper Corp., 44 Wall street, E. H. Clark, president, announces a power plant on the Montaro river, which will cost about $6,500,000, an electrolytic zinc plant at Oroya, two concentrating mills, a tramway and small plant with equipment will be part of its construction program.

BEDFORD, PA.—May & Bigley, manufacturers of insulator pins, have awarded contract for a 2-story plant addition, 54 x 100 feet. D. G. Pruderbaugh, Altoona, Pa., is architect.

ERIE, PA.—National-Erie Co., A. H. Willis, advises it is erecting a new building and buying some new equipment.

HOMESTEAD, PA.—Standard Propeller Co. is receiving bids for a 3-story plant, 130 x 240 feet. A. G. Wickerham, 135 East Eighth avenue, Pittsburgh, is architect. Estimated cost $250,000 (Noted March 7.)

PHILADELPHIA—Reyburn Mfg. Co., Thirty-second and Allegheny streets, has awarded contract for a 5-story basement building, 100 x 245 feet, to J. G. Rogers Co., Drexel building. (Noted April 18.)

PITTSBURGH—Steel City Electric Co., 1207 Columbus avenue, has awarded contract for 2-story plant addition, 40 x 144 feet, to W. F. Trimble & Sons, 1719 Pennsylvania avenue, Pittsburgh. Estimated cost $40,000.

READING, PA.—H. B. Luria, of Luria Bros. & Co. Inc., advises there is no foundation to the report that they have purchased a 5-acre tract of land at East Butler, Pa., as a site for a large warehouse and yard.

YORK, PA.—U. S. Chain & Forging Co. has awarded contract for a plant addition to the Fort Pitt Bridge Works, Canonsburg, Pa. (Noted April 4.)

HILLGROVE, R. I.—King Union Co., manufacturer of pipe fittings, is building a 1-story plant addition, 33 x 75 feet.

Southern States

BIRMINGHAM, ALA.—Lamson & Sessions Co., 1971 West Eighty-fifth street, Cleveland, manufacturer of bolts, nuts, rivets, etc., has started work on its new plant here. Estimated cost about $500,000 including equipment.

BIRMINGHAM, ALA.—Ingalls Iron Works Co., R. I. Ingalls, president, it is reported has

(*Continued on Page* 1379)

Machinery

Few Large Orders Are Being Taken, but Large Miscellaneous Buying Keeps Activity at High Level—Deliveries Somewhat Easier

DESPITE the fact that relatively few large lists are current, the sale of machine tool and shop equipment remains at a high level. With the exception of the automotive industry, buying is general. Deliveries are a little easier, but still are well deferred in most cases. Dealers report, however, that few sales are being lost for this reason, buyers usually being willing to wait. Demand for used tools is good and is attributed to the fact that this class of equipment is acquired when capacity is needed immediately. Little inquiry is coming from the automotive industry, although the production of cars is holding up well. Replacements, of course, are being made as necessity demands. Crane awards have been light recently, but considerable business is pending.

New York, May 14.—While local machine tool market continues active, demand is easier than a week ago. Fresh inquiry is devoid of sizable lists, and with few exceptions orders have been confined to single tools. One exception is the placing of 14 machine tools by the Sikorsky Aircraft Corp. for a toolroom installation at its plant at Bridgeport, Conn. Western Electric Co. also continues to place orders for various machine tools, not only for Baltimore but for Kearny, N. J. Recent large buyers such as the Lycoming Motors Corp., Williamsport, Pa., Victor Talking Machine Co., Camden, N. J., and Eclipse Engine Co., East Orange, N. J., are understood to have now covered on the great bulk of their requirements. Railroad demand continues slack with the Delaware, Lackawanna & Western and the Chesapeake & Ohio the only two eastern railroads with pending lists of importance. Action on the Lackawanna list is expected most any time.

Worcester, Mass., May 14.—Delivery continues to be the important factor in placing orders for new equipment. Plants gradually are cutting into backlogs and the total volume of new business, although largely confined to small groups of tools, totals large. The steady volume of orders shows little decline in the aggregate. Inquiry is brisk and well distributed. Automotive interests which reduced purchases some weeks ago, in one or two instances again are inquiring for a few tools, but are firm on delivery. Grinding machinery holds steady. There is a strong demand for parts. Machine shop trade is good. Small tools are moving well, jobbers reordering in numerous instances. Used tools are fairly active. Actual new business placed, however, appears smaller than a month ago.

Pittsburgh, May 14.—The machine tool market is more active, inquiry showing a fair expansion recently and a gain being noted in awards. Inquiry is well diversified with steel companies sharing in prospective new business. Standard Steel Propellor Co., which has plans under way for an expansion at its Homestead plant, has placed orders for about 15 tools, including lathes, milling machines and drills. United Engineering & Foundry Co. has been awarded a contract by the Gulf States Steel Co. for a new 40-inch blooming mill at its Alabama City, Ala., works. Westinghouse Electric & Mfg. Co. has closed on a few more tools, with a number still on inquiry. The crane market is fairly active from the standpoint of pending business, although recent awards have been light.

Chicago, May 14.—Machine tool sales are at the approximate level of the corresponding period last month, with well sustained scattered buying, heavy billings and moderate inquiry. The absence of large inquiry lists has been a conspicuous feature of the market for some time. Sales of shapers were active in the week just closed, and a number of orders for lathes were placed in the immediate Chicago area, besides numerous sales outside the district. A Peoria, Ill., manufacturer has issued a list for several items, and Davenport, Ia., interests purchased a shaper, lathes and several other tools. Union Pacific railroad has issued a list for a dozen items, including a 36-inch shaper, 18 x 8 lathe, six grinders, spot, arc and flue welders, and a plate roll. Chicago & North Western is inquiring for a few more items. Santa Fe has placed several additional orders against the large inquiry list that has been pending for some time. Deliveries have been further extended on horizontal milling machines, one builder being unable to promise shipments before October. Lathes are six to eight weeks deferred. Inquiry for used tools is active.

Cleveland, May 14.—Volume of orders in this territory still falls short of that which prevailed a month ago, nevertheless, business is good. Most of the purchases are small and of miscellaneous character. Deliveries still are well deferred, although the condition is improving somewhat. Few sales are lost because of delivery, customers usually being willing to wait. In cases where equipment must be had immediately, used machinery is bought.

CRANE ORDERS PLACED

Two electric overhead cranes for New York Central; a 20-ton crane for installation in New York to Bedford Foundry & Machine Co., and 10-ton crane for installation in Buffalo reported placed with Whiting Corp.

Two single I-beam hand-geared underhung cranes, one 5-ton and one 3-ton, for Priester Construction Co., Davenport, Iowa; to H. D. Conkey & Co.

Among single orders were: 15-ton crawler crane for city of Syracuse, N. Y., to Browning Crane Corp.; 25-ton locomotive crane for Merritt-Chapman & Scott, New York, to Ohio Locomotive Crane Co.; 25-ton locomotive crane for Phoenix Utility Co., New York, to Ohio Locomotive Crane Co.; 30-ton locomotive crane for Lehigh Valley to unnamed seller; 30-ton locomotive crane for Reading Co. to unnamed seller; 15-ton crawler crane for New York Central, reported placed; 7½-ton 3-motor double-girder crane for Shell Petroleum Corp., St. Louis, to H. D. Conkey & Co.; 5-ton single I-beam hand geared crane for Union Carbide Co., Niagara Falls, N. Y., to H. D. Conkey & Co.; 10-ton double-girder handpower crane for Gulf Public Service Co., Jacksonville, Tex., to H. D. Conkey & Co.; 1-ton single I-beam underhung push crane for Vanadium Alloys Steel Co., Chicago, to H. D. Conkey & Co.; 2-ton mast-type jib crane for Western Electric Co., Chicago, to H. D. Conkey & Co.; 7½-ton double-girder hand-geared crane for Des Moines Steel Co., Des Moines, Iowa, to H. D. Conkey & Co.; 5-ton double-girder hand-geared crane for Kimball Pump Co., Los Angeles, to H. D. Conkey & Co.; 2-ton mast-type jib crane for Lancaster Malleable & Steel Corp., Lancaster, N. Y., to H. D. Conkey & Co.; 2-ton single I-beam push crane for Adams Co., Dubuque, Iowa, to H. D. Conkey & Co.

CRANE ORDERS PENDING

5-ton electric overhead crane for Carlson Hoist & Machine Co., 1074 St. Marks avenue, Brooklyn; bids asked.

Used overhead electric crane of 10, 15 or 20-ton capacity, 96-foot span, for Sheffield Steel Corp., Kansas City; pending.

Used 10 or 15-ton electric overhead crane for Petterson Foundry & Machine Co., East Liverpool, O.; pending.

Electric Orders Record

Washington, May 14.—A new record was established in the first quarter of 1929 in orders booked for electrical goods, as reported by the department of commerce. No equal period on record gave so large a total. Figures for previous quarters are as follows:

	1st quarter	2nd quarter	3rd quarter
1923	$220,384,205	$235,571,467	$196,750,860
1924	221,687,030	216,637,855	181,160,835
1925	227,767,511	222,056,450	225,184,732
1926	255,917,883	240,855,953	233,873,171
1927	235,883,303	229,353,332	228,610,346
1928	237,508,001	245,520,801	264,466,257
1929	321,732,414	.....	.....

	4th quarter	Total
1923	$210,994,546	$863,701,078
1924	225,070,111	844,555,831
1925	237,225,521	912,234,214
1926	251,442,991	982,089,998
1927	232,877,670	926,724,651
1928	281,988,159	1,029,483,218

Construction and Enterprise

(*Continued from Page* 1377)

started work on plant addition to include new equipment and machinery.

SYLACAUGA, ALA.—City plans to build filtration plant. Wiedeman & Singleton, Candler building, Atlanta, Ga., are consulting engineers and have completed preliminary plans and surveys.

HOLLYWOOD, FLA.—City plans water works including filtration plant, pumping plant, mains, etc., Gilbert C. White Co., 406½ Main street, Durham, N. C., is engineer, and will soon take bids.

MONROE, LA.—Century Carbon Co., 253 Front street, New York, plans to start work immediately on its new plant at Start, in Richland parish, near here. Estimated cost is about $600,000.

WAURIKA, OKLA.—City plans waterworks improvements. E. W. Gantt & Co., 1116 West Main street, Oklahoma City, Okla., is engineer.

WEWOKA, OKLA.—City has preliminary plans for booster pumping station, will include two 500-gallons per minute pumps. Long & Co., 1300 Concord building, Oklahoma City, Okla., is engineer.

CHATTANOOGA, TENN.—Walsh & Weidner Co., manufacturer of boilers, and similar equipment for power plants, has started construction of a 1-story addition, 60 x 200 feet, to its machine shop.

AUSTIN, TEX.—Tips Engine Works-Heierman Industries Inc., 300 Crockett street, Walter E. Heierman, president, plans installation of steel fabricating plant.

LAREDO, TEX.—Aztec Stove & Foundry Works, 210 Corpus Christi street, has started construction of foundry building. Operations are expected to begin within the next 60 days. J. J. Gonzales, is superintendent.

WICHITA FALLS, TEX.—Wilson Mfg. Co., 707 North Scott avenue, manufacturer of oil well machinery and supplies, has started an expansion program including adding additional space to the machine shop and warehouse.

STOCKTON, CALIF.—Fraser Gas Furnace Co., 445 San Joaquin street, has awarded contract for a 1-story plant, to J. F. Shepherd, First National Bank building. (Noted Feb. 28.)

DACONA, COLO.—This city, care Frank Koenig, clerk, is taking bids for water system including pumps, pump house, meters, pipe line and hydrants. Douglass & Thwaits, 232 Continental Oil building, Denver, Colo., are consulting engineers.

DENVER—Liquid Carbonic Co., 3100 Kedzie avenue, Chicago, has awarded contract for a dry ice plant here, to the Austin Co., 16112 Euclid avenue, Cleveland. Estimated cost $150,000.

HYRUM, UTAH—City voted favorably on bond issue for power plant development on Blacksmith Fork river, including powerhouse. (Noted Feb. 21.)

West Central

FAIRFIELD, IOWA—Lowden Machinery Co. plans to build a 1-story plant addition, 130 x 160 feet.

OTTUMWA, IOWA—Iowa Southern Utilities Co. plans to build an addition to its plant here. Estimated cost about $300,000.

VINTON, IOWA—City proposes to improve light and power plant including new turbines, A. H. Houlihan, councilman.

WATERLOO, IOWA—City is having plans prepared for construction of sewage treatment works including two pumping stations. N. B. Barber, city hall, is engineer.

MINNEAPOLIS—Ritefit Mfg. Co., 11 Second street, manufacturer of pistons, etc., plans to build 1-story plant addition, 42 x 175 feet. Contract is said to have been awarded.

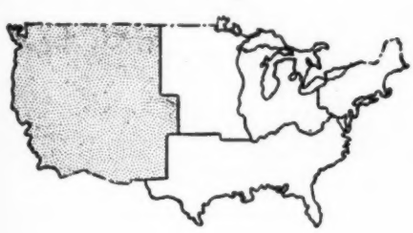
ST. CLOUD, MINN.—Aluminum Industries Inc., 2438 Beekman street, Cincinnati, operator of the former Diamond Motor Parts Co., is having plans prepared for plant expansion to care for increased production.

BILLINGS, MO.—City plans election June 4, to vote on $40,000 bond issue for waterworks improvements including booster pump. Russell & Axon, McDaniel building, Springfield, Mo., are engineers. (Noted March 14.)

JOPLIN, MO.—Riverside Mining Co. located at Fillmore's bridge, about six miles southwest of Joplin, recently had its lead and zinc ore mill badly damaged by fire. Loss estimated at $40,000.

SPRINGFIELD, MO.—Monarch Machine Co., 713 East Elm street, recently incorporated, advises it is building a new plant and will purchase equipment.

ST. LOUIS—Curtiss-Robertson Airplane Mfg. Co. will build plant addition at Lambert-St. Louis field to cost about $300,000.



Western States

ALTURAS, CALIF.—Nevada-California-Oregon railway plans improvements including new engine houses, etc., at Alturas, also at Wendell. W. T. Gould, Alturas, is chief engineer. Estimated cost $1,000,000.

SACRAMENTO, CALIF.—Pacific Gas & Electric Co., 245 Market street, San Francisco, is having plans prepared for addition to Bear River power plant here, to incease capacity 4430 horsepower.

SACRAMENTO, CALIF.—State building commission will receive bids about June 21, for group of buildings including power house, at San Diego state teachers college, San Diego, also take bids about July 26, for construction of substation, at Mendocino state hospietal, Ukiah. G. B. McDougall, Sacramento, is state architect.

SAN BRUNO, CALIF.—San Bruno-Lomita park and South San Francisco sanitary district, plans to vote on $50,000 bond issue for construction of sewage system including two pumping plants, etc.

Canada

CALGARY, ALBERTA—Dominion Bridge Co. will start work immediately on a structural steel plant to cost $80,000 adjoining the Riverside Iron Works Co. Ltd. The building will be one story, 60 x 416 feet, and will be of similar design to the Riverside plant.

TABER, ALTA.—Having installed a $40,000 water pumping plant here the Canadian Pacific Railway Co. has found it inadequate and now proposes to spend $60,000 on a second pump and filtration system. Work to be started early in the summer.

VANCOUVER, B. C.—Boeing Aircraft Co., Seattle, in which W. E. Boeing is interested, has taken over the building of the Hoffar-Beeching Shipyards Ltd., here, and proposes to install equipment immediately for the manufacture of airplanes, etc.

WINNIPEG, MAN.—It is reported that the Ford Motor Co. of Canada, Ford City, Ont., plans to build an $8,000,000 plant here.

BRANTFORD, ONT.—City council contemplates purchasing the following equipment for installation in waterworks plant here: Two or three crude oil driven electrical generators with combined output of from 800 to 850 horsepower, to serve as reserve pumps; 500,000-gallon gravity water filtration plant; three low lift motor driven centrifugal pumps of 50,000,000 gallons each; three new high lift centrifugal pumps. One new motor is required.

CHATHAM, ONT.—Hayes Wheels & Forgings Ltd., Raleigh street, plans to build a large plant addition here. William Kistler is superintendent.

HAMILTON, ONT.—Procter & Gamble Co. of Canada Ltd., Burlington street, proposes to build a $200,000 plant addition here. E. J. Whitcher, Cincinnati, is purchasing agent.

HAMILTON, ONT.—Stanley Steel Co. Ltd., Gerrard street, has awarded general contract to Frid Construction Co., 6 Hughson street, for additions to its plant here to cost $100,000. The

first unit, to cost $60,000, will be started immediately and a second unit, to cost $40,000, will be started in July. Equipment will be required.

NORTH BAY, ONT.—Council proposes to make extensive additions to its waterworks plant and is receiving bids for a pumphouse and the supply of equipment, including one motor-driven pump of 2200 gallons per minute and one gasoline-driven pump of 2800 gallons per minute capacity. F. G. Mackie is engineer.

PENETANGUISHENE, ONT.—The ratepayers passed a by-law in connection with an addition to the plant of the Dominion Stove & Foundry Co., here. Plans are being prepared and construction work will be started immediately. Equipment will be purchased. (Noted April 11.)

TORONTO, ONT.—Dominion Wheel & Foundries Ltd., 131 Eastern avenue, is having plans prepared for foundry addition. Estimated cost $60,000.

TORONTO, ONT.—Smith Brothers, Ltd., manufacturers of automobile bodies, propose to start work immediately on a $75,000 manufacturing plant on Logan avenue near Keating street.

WALKERVILLE, ONT.—Cunningham Sheet Metal Works, 69 Lincoln road, has let general contract to the Border Construction Co. Ltd., Imperial Bank building, for a 1-story plant addition here.

WALKERVILLE, ONT.—Walkerville has been chosen as the site for the Canadian plant of the Stout Metal Airplane Co., manufacturing Ford trimotor metal airplanes, according to William B. Mayo, Detroit, chief engineer of the company.

WINDSOR, ONT.—Union Natural Gas Co. of Canada Ltd., Chatham, Ont., R. L. Bevan superintendent of production, advises contract for the new plant of the Windsor Gas Co. has been awarded to the General Oil Gas Corp., 24 Broad street, New York.

HULL, QUE.—Bids will be called about the middle of June in connection with a municipal power plant here to cost $50,000. Theo. Lanctot, city hall, is engineer. (Noted March 7.)

MONTREAL, QUE.—Jeffrey Mfg. Co. Ltd., 285 Beaver Hall hill, has been organized, according to announcement by the Jeffrey Mfg. Co., Columbus, O. The complete line of Jeffrey products which has been manufactured in Columbus, O., will be supplied by the new Canadian company.

WATERLOO, QUE.—McDonald Wire Goods Co. Ltd. has awarded contract to Cecil Carpenter Co., room 25, 3 Craig street west, Montreal, Que., for a foundry here, one story, 85 x 217 feet.

REGINA, SASK.—City council has awarded contract to Bird, Woodall & Sompson, for a sludge unit and power house here.

Recent Incorporations

TERRE HAUTE, IND.—Fremont Typesetting & Foundry Co. has been incorporated with $110,000 capital, by Walter G. Fremont, 731 South Center street, and Thaddeus W. Varney.

WORCESTER, MASS.—Recording Tachometer Co. has been incorporated with $30,000 capital to manufacture and deal in machinery, appliances and parts, by Ensley A. Weir, 134 Elm street, Worcester, president.

WORCESTER, MASS.—J. E. Lamotte & Son Inc. has been incorporated with $100,000 capital to manufacture and deal in heating, plumbing and ventilating materials, by Joseph G. Lamotte, Shrewsbury, Mass., and Geroge Lamoureux, 91 Clark street, Worcester.

DETROIT—Ever-Ready Coal Burner Co., 835 Lafayette building, has been incorporated with 15,000 shares no par value to manufacture a coal burner, by Earl E. Watson.

GRAND RAPIDS, MICH.—Houston Rolling Mill Corp., 319 Powers building, has been incorporated with 100,000 shares no par value to manufacture iron, steel, copper, etc., by Charles E. Purifoy, Houston, Tex., N. C. Ralph and J. E. Wells, Grand Rapids.

LANSING, MICH.—Capitol Tool & Engineering Co., 611 North Grand avenue, has been incorporated with $25,000 to manufacture and deal in tools, dies, patterns and conduct a machine shop, by Clarence A. Hathaway, Lansing.

ROCHESTER, MICH.—Rochester Screw Co. has been incorporated with $30,000 capital to manufacture screw machine products and accessories, by Gorham C. Parker, Stockbridge, Mich.

MILWAUKEE—Boyer Sheet Metal & Furnace Co., 436 Maryland avenue, has been incorporated with $5000 capital stock as development of sheet metal business of Jasper T. Boyer. Other principals are Eugene W. Boyer and Paul T. Riordan.

JERSEY CITY, N. J.—Willis Armature Service Co. has been incorporated with $50,000 capital, by Barison & Barison, 591 Summit street, Jersey City.

NEWARK, N. J.—Allegro Co. has been incorporated with $125,000 capital to manufacture and deal in razor sharpeners, by Lehlbach, Johnson & Ormond, Prudential building, Newark.

NEWARK, N. J.—Durite Products Corp. has been incorporated with 2000 shares of common stock to manufacture and deal in machinery, by U. S. Corporation Co., 150 Broadway, New York.

BROOKLYN, N. Y.—A. & S. Tool Works has been incorporated with 200 shares of common stock, by S. M. and D. E. Meeker, 1 Hanson place, Brooklyn, N. Y.

BROOKLYN, N. Y.—H. & C. Electrical Mfg. Co. has been incorporated with $10,000 capital by Gould & Wilkie, 2 Wall street, New York.

BROOKLYN, N. Y.—Welbilt Stove Co. has been incorporated with $150,000 capital, by H. D. Levy, 26 Court street, Brooklyn, N. Y.

NEW YORK—Chelsa Auto Sheet Metal Works has been incorporated with $5000 capital, by G. A. Steckenburg, 290 Broadway.

NEW YORK—Ben Stone Machine Shops has been incorporated with $10,000 capital, by J. G. Shaff, 280 Madison avenue, New York.

NEW YORK—Peerless Cement Brick Machinery Co. has been incorporated with $25,000 capital, by L. Y. Thayer, 25 West Forty-third street, New York.

NEW YORK—G. W. Thomas Mfg. Co. has been incorporated with $20,000 capital to manufacture and deal in machinery, by S. Graham, 15 Park place, New York.

NEW YORK—Elber Metal Stamping Corp., has been incorporated with $6000 capital, by L. D. Cohen, 1705 Pitkin avenue, Brooklyn, N. Y.

NEW YORK—National Vending Machine Mfg. Corp. has been incorporated with $20,000 capital, by H. P. Rosenblatt, 276 Fifth avenue, New York.

HIGH POINT, N. C.—High Point Oil Burner Corp. has been incorporated with $100,000 capital, by B. A. E. Taplin and George T. Stephens.

New Trade Publications

NAILS AND TACKS—Tower Mfg. Co., Madison, Ind., has issued a catalog of its line of tacks, small cut nails and staples, of which it is a long-established manufacturer.

TEMPERATURE CONTROL—Bristol Co., Waterbury, Conn., manufacturer of instruments for temperature control, in a current bulletin illustrates two applications of its instruments to oven operation.

STEEL POLES—Truscon Steel Co., Youngstown, O., has issued a catalog of its steel poles, welded truss and welded tube types, as competitors of wood poles. Engineering tables and detailed drawings of pole construction are included and data on pole fittings and accessories, catenary hangers, floodlight and other towers, windows and window operators. A large number of views of installations of these devices are included.

RIVETERS—Hanna Engineering Works, Chicago, manufacturer of riveting equipment, suggests advantages of riveting in construction work and illustrates some of the devices it makes for that purpose.

LIFTS AND STACKERS—Lewis-Shepard Co., Boston, has issued a broadside on its portable elevators for lifting and stacking materials, with many illustrations showing their application in a wide variety of industrial plants.

WELDING—Lincoln Electric Co., Cleveland, has issued a leaflet describing and illustrating the use of welding in attaching a new section to an existing skyscraper to avoid noise and vibration to tenants in the older building. It demonstrates the method by halftones, showing an actual application.

AUTOMATIC CONTROL PANELS—General Electric Co., Schenectady, N. Y., manufacturer of electrical devices, describes in a current bulletin its automatic control panel for industrial electric heating. The bulletin is illustrated and the equipment is described.

Model 24-P ejection type press, having box 100" long, 20" wide, 42" deep. Finished bales measure 20" x 14" x 14" minimum. Can be equipped with power operated loading hopper.

LOGEMANN SCRAP METAL PRESSES

Hydraulically compressed scrap commands at all times the *best price*, and can be conveniently stored and held for favorable markets; it is easily handled; it practically eliminates corrosion; it saves much time in remelting; cars can be easily loaded to capacity.

***LOGEMANN Presses* are built in several types and sizes to suit all requirements.**

You cannot go wrong on a LOGEMANN—it's a money maker from the day it is set in operation.

PIONEERS!

LOGEMANN Scrap Metal Presses, pioneers in this industry, enjoy an enviable reputation for long life and economical operation. They are in daily use in practically every large sheet mill, stamping plant, scrap yard, and in metal-working establishments of all kinds.

Our many years of accumulated experience, and services of our Engineering Department are at the disposal of all plants accumulating metal scrap of any kind.

LOGEMANN BROTHERS COMPANY, 3126 Burleigh St., MILWAUKEE, WIS.

Pipe and Tube Prices—Plate Extras

Steel Pipe

Pittsburgh and Lorain basing discounts, jobber's carloads.

Evanston, Ill., and Indiana Harbor, Ind., take differential 2 points less discount.

Chicago takes differential 2½ points less than Pittsburgh-Lorain basis.

Butt Weld

	Black	Galvanized
⅛-inch	45	19½
¼ and ⅜-inch	51	25½
½-inch	56	42½
¾-inch	60	48½
1 to 3-inch	62	50½

Lap Weld

2-inch	55	43½
2½ to 6-inch	59	47½
7 to 8-inch	56	43½
9 and 10-inch	54	41½
11 and 12-inch	53	40½

REAMED AND DRIFTED

Butt Weld

1 to 3-inch	60	48½

Lap Weld

2-inch	53	41½
2½ to 6-inch	57	45½

EXTRA STRONG—PLAIN ENDS

Butt Weld

⅛-inch	41	24½
¼ and ⅜-inch	47	30½
½-inch	53	42½
¾-inch	58	47½
1 to 1½-inch	60	49½
2 to 3-inch	61	50½

Lap Weld

2-inch	53	42½
2½ to 4-inch	57	46½
4½ to 6-inch	56	45½
7 to 8-inch	52	39½
9 and 10-inch	45	32½
11 and 12-inch	44	31½

DOUBLE EXTRA STRONG

Butt Weld

½-inch	42	32½
¾ to 1½-inch	45	35½
2 to 2½-inch	47	37½

Lap Weld

To large jobbers these discounts are increased on black by 1 point and a supplementary discount of 5 per cent; on galvanized by 1½ points with a supplementary 5 per cent. Extra 5 per cent granted in the 4th quarter 1927 and 1st quarter 1928 discontinued April 2, 1928.

Wrought Iron Pipe

Pittsburgh basing discounts, jobbers' carloads. Individual quotations made on delivered basis.

THREADS AND COUPLING

Butt Weld

	Black	Galv.
¼ and ⅜-inch	+11	+36
½-inch	23	5
¾-inch	28	11
1 and 1¼-inch	31	15
1½ and 2-inch	35	18

Lap Weld

1¼ and 1½-inch	Upon application	
2-inch	23	9
2½ to 3½-inch	28	12
4 to 6-inch	30	17
7 and 8-inch	29	16
9 to 12-inch	26	11

REAMED AND DRIFTED

2-inch to 6-inch—Two points less than above

EXTRA STRONG, PLAIN ENDS

¼ and ⅜-inch	+13	+48
½-inch	23	7
¾-inch	28	12
1 to 2-inch	34	18

Lap Weld

2-inch	29	13
2½ to 4-inch	34	20
4½ to 6-inch	33	19
7 and 8-inch	31	17
9 to 12-inch	21	8

DOUBLE EXTRA STRONG

Butt Weld

½-inch	+47½	+59½
¾-inch	+28	+40
1-inch	+34	+46
1¼-inch	+28	+40
1½-inch	+27	+39

Lap Weld

2 and 2½-inch	+13	+25
3 to 4-inch	+ 8	+17
4½ to 6-inch	+ 9	+18
8-inch	+12	.....

Jobbers obtain additional preferential discounts of 1, 5 and 2½ on black and galvanized wrought iron pipe.

On extra or double extra strong pipe fitted with threads and couplings basing discount lowered 5 points from plain end price. Fitted with threads only, basing discount lowered 3 points for random lengths.

Boiler Tubes

Pittsburgh carload discounts

STEEL (Lap Weld)

2 and 2¼-inch	40 off
2½ and 2¾-inch	48 off
3-inch	54 off
3½ to 3¾-inch	56 off
4-inch	59 off
4½ to 6-inch	48 off

Subject to two 5 per cent discounts on full carload shipments. On less than 10,000 pounds, base discount reduced 6 points and one 5 per cent allowed. On 10,000 pounds to carload, base discount reduced 4 points and two 5 per cents allowed.

CHARCOAL IRON

1½-inch	1 off
1¾-inch	8 off
2 and 2¼-inch	13 off
2½ and 2¾-inch	16 off
3-inch	17 off
3¼ to 3½-inch	18 off
4-inch	20 off
4½-inch	21 off

Subject to 10 per cent discount on full carload lots. On less than 10,000 pounds, base discount reduced 2 points and no preferential allowed. On 10,000 pounds to carload, 5 per cent preferential allowed.

SEAMLESS COLD DRAWN

1-inch	63 off
1¼ and 1½-inch	55 off
1¾-inch	39 off
2 and 2¼-inch	34 off
2½ and 2¾-inch	42 off
3-inch	48 off
3¼ and 3½-inch	50 off
4-inch	53 off
4½, 5 and 6-inch	42 off

SEAMLESS HOT ROLLED

1¾-inch	39 off
2 and 2¼-inch	40 off
2½ and 2¾-inch	48 off
3-inch	54 off
3¼ and 3½-inch	56 off
4-inch	59 off
4½, 5 and 6-inch	48 off

Subject to 5 per cent supplementary discount for carload lots. On less than 10,000 pounds, base discount reduced 6 points. On 10,000 pounds to carload, base discount reduced 4 points and one 5 per cent allowed.

SEAMLESS STEEL MERCHANT BOILER TUBES

Extras:

Add 5 per cent for lengths over 24 feet and not over 26 feet.

Smaller tubes than 1-inch and lighter than standard gage to be sold at mechanical tubing list and discount.

Intermediate sizes and gages not listed above take price of next larger outside diameter and heavier gage.

SEAMLESS STEEL MECHANICAL TUBING

Base Discounts on New List July 1, 1925

Carbon 0.10 to 0.30 per cent.....50 to 55 off
Carbon 0.30 to 0.40 per cent.....45 to 50 off

Plus usual extras for forming and for long lengths over 18 feet and for commercially exact lengths.

SEAMLESS STEEL LOCOMOTIVE AND SUPERHEATER TUBES

Outside diameter	Gage	Net prices per foot f.o.b. Pittsburgh Price
2-inch	12-gage	14¼c
2-inch	11-gage	15c
2-inch	10-gage	16c
2¼-inch	**12-gage**	**16c**
2¼-inch	11-gage	17c
2¼-inch	10-gage	18c
3-inch	7-gage	38c
5⅝-inch	9-gage	50c
5½-inch	9-gage	52c

Plus usual extras for forming and for lengths over 24 feet.

Plate Extras

BASE

Rectangular plates, tank steel or conforming to manufacturers' Standard Specifications for structural steel, date Nov. 24, 1922, or equivalent, ¼-inch thick and over on thinnest edge (except for ¼-inch or 72 inches wide when ordered to weight in pounds per square foot—see width and gage extras), 100 inches wide and under, down to but not including 6 inches wide, 5 feet 0 inches long up to published limit in length but not over 80 feet 0 inch, are base. Extras per pound for width or diameter.

All Plates Rectangular or Otherwise

¼-inch thick and heavier, but not less than 11 pounds per square foot, if ordered to weight.

Over 100 to and including 110 inches	.05c
Over 110 to and including 115 inches	.10c
Over 115 to and including 120 inches	.15c
Over 120 to and including 125 inches	.25c
Over 125 to and including 128 inches	.50c

Plates less than ¼-inch or lighter than 11 pounds per square foot.

Over 72 to and including 84 inches	.10c
Over 84 to and including 96 inches	.20c
Over 96 to and including 100 inches	.30c

Over 100 inches add .35c to width extras for plates ¼-inch thick and heavier.

GAGE

Plates Not Exceeding 72 Inches Wide

Plates less than ¼-inch gage, to and including $\frac{9}{32}$-inch; or lighter than 10.2 pounds per square foot, to and including 7.65 pounds square foot..... .20c

Plates Over 72 Inches Wide

Plates less than ¼-inch gage, to and including $\frac{9}{32}$-inch; or lighter than 11 pounds per square foot, to but not including 7.65 pounds square foot.... .20c
Plates ordered 7.65 pounds square foot .30c

QUALITIES

Pressing steel	.10c
Flange steel (boiler grade)	.15c
Ordinary firebox steel	.20c
Stillbottom steel	.30c
Locomotive firebox steel	.50c
Marine steel	1.50c
Hull materials subject to U. S. Navy Dept. specifications for medium or soft steel	.10c
High tensile hull steel subject to U. S. navy department or equivalent specifications	1.00c
Boiler steel subject to U. S. navy department specifications, classes A-B	1.50c
Hull plates to hull specifications, required to stand cold flanging, take extra for flange steel.	

Floor Plates

Checkered plates 1.75c

Checkered plates are not furnished to sketch and are rolled from "Stock Steel" only. No physical tests will be made on checkered plates.

INSPECTION

Mill inspection .....No extra

Charges for other inspection, such as Lloyd's or American bureau of shipping, will be made by inspection bureau direct to buyer.

CUTTING

LENGTH OR DIAMETER

All Plates, Rectangular or Otherwise

Five feet and over up to published limit of length, but not over 80 feet	No extra
Under 5 feet to 3 feet inclusive	.10c
Under 3 feet to 2 feet inclusive	.25c
Under 2 feet to 1 foot inclusive	.50c
Under 1 foot	1.55c
Over 80 feet to 100 feet inclusive	.10c

Over 100 feet add .25c plus .05c for every additional 2 feet or fraction thereof.

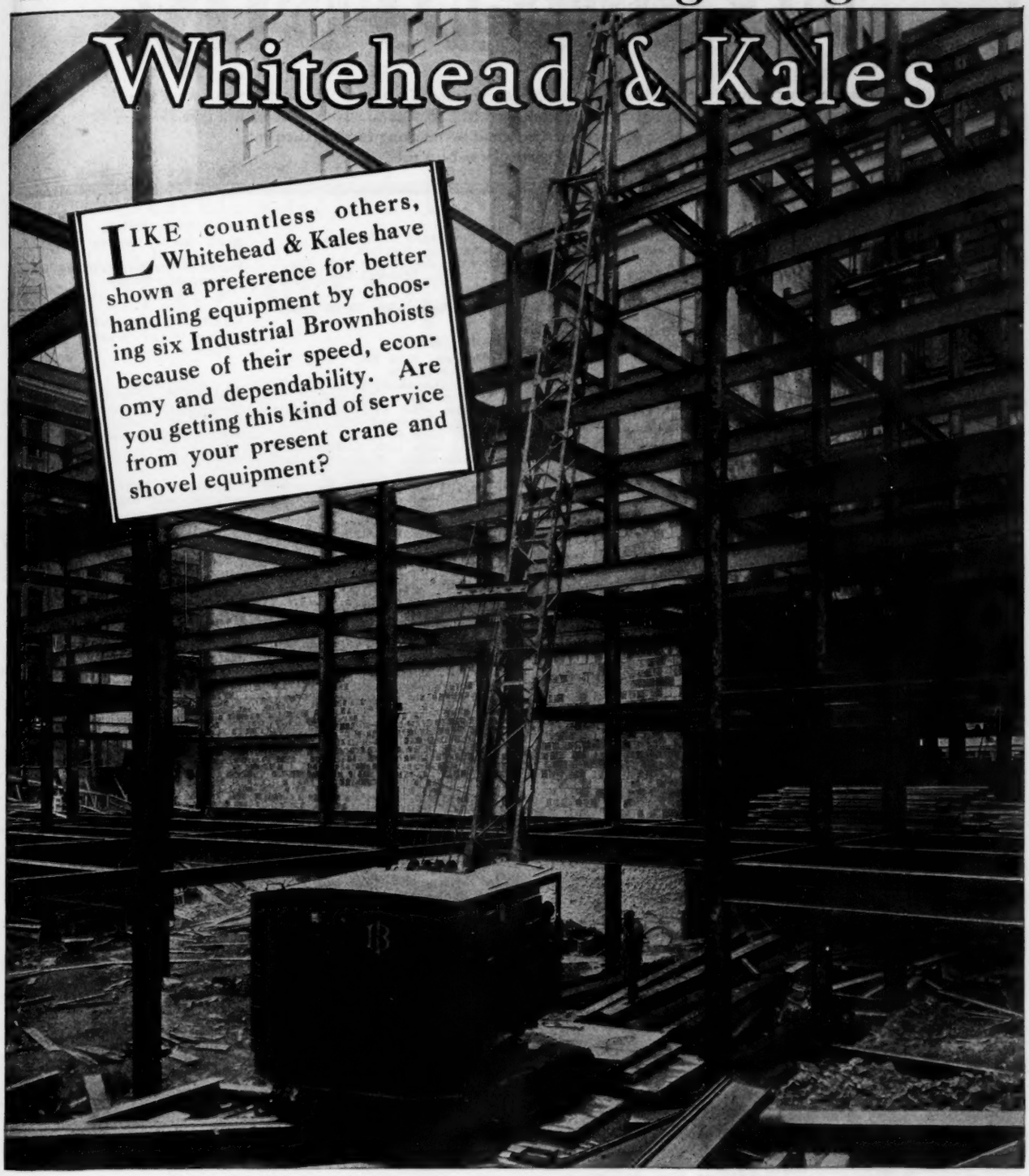
Regular Sketches

With not more than four straight cuts. (Including straight taper plates)
Additional extra ..... .10c

Irregular Sketches

With not more than four straight cuts. (Sketches cannot be sheared with reentrant angles)
Additional extra ..... .20c

The Choice of Leading Engineers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LIKE countless others, Whitehead & Kales have shown a preference for better handling equipment by choosing six Industrial Brownhoists because of their speed, economy and dependability. Are you getting this kind of service from your present crane and shovel equipment?

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District Offices: New York, Philadelphia, Pittsburgh, Detroit, Chicago, New Orleans, San Francisco.

Plants: Brownhoist Division, Cleveland; Industrial Division, Bay City, Michigan; Elyria Foundry Division, Elyria, Ohio.

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United Engineering & Foundry Co., Farmers Bank Bldg., Pittsburgh, Pa.
Wood, R. D., & Co., 400 Chestnut St., Philadelphia, Pa.

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International Oxygen Co., Newark, N. J.
Prest-O-Lite Co., The, 30 E. 42nd St., New York City.

ACETYLENE GENERATORS
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American Chemical Paint Co., Ambler, Pa.

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Vanadium Corp. of America, 120 Broadway, New York City.

ALUMINUM
Summerill Tubing Co., Bridgeport, Pa.

ALUMINUM (Vanadium)
Vanadium Corp. of America, 120 Broadway, New York City.

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Petroleum Iron Works Co., The, Sharon, Pa.
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Union Steel Casting Co., 62nd and Butler Sts., Pittsburgh, Pa.
United Engineering & Foundry Co., Farmers Bk. Bldg., Pittsburgh.

ANVILS (Cast Steel)
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McKee, Arthur G., & Co., 2422 Euclid Ave., Cleveland, O.

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ARCHITECTS (Industrial)
Austin Co., The, 16112 Euclid Ave., Cleveland, O.

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Champion Machine & Forging Co., 3675 E. 78th St., Cleveland.
Illinois Steel Co., 208 So. LaSalle St., Chicago, Ill.

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Williams Alloy Products Co., The, Elyria, Ohio.

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Franklin Steel Works, Franklin, Pa.
Illinois Steel Co., 208 S. LaSalle St., Chicago, Ill.
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Republic Iron & Steel Co., Youngstown, O.
Ryerson, Jos. T., & Son, Inc., 16th and Rockwell Sts., Chicago.
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Inland Steel Co., First National Bank Bldg., Chicago, Ill.
Migret, Rene, 7 Boulevard DeFontaine, Charleroi, Belgium.
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Republic Iron & Steel Co., Youngstown, O.
Ryerson, Jos. T., & Son, Inc., 16th and Rockwell Sts., Chicago.

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Hausman & Wimmer Co., The, Clark Bldg., Pittsburgh, Pa.
Washburn Wire Co., Phillipsdale, R. I.

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Hausman & Wimmer Co., The, Clark Bldg., Pittsburgh, Pa.

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Central Alloy Steel Corp., Massillon, O.
Erie Forge Co., Erie, Pa.
Hausman & Wimmer Co., The, Clark Bldg., Pittsburgh, Pa.
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BILLETS (Forging, Alloy Steel)
Bethlehem Steel Co., Bethlehem, Pa.

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